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FOSTERING DESIGNERS' VISUAL
PRACTICES THROUGH A
SOCIOCULTURAL APPROACH

EMMA LOUISE JEFFERIES

Ph. D.

2009

FOSTERING DESIGNERS' VISUAL
PRACTICES THROUGH A
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EMMA LOUISE JEFFERIES

A thesis submitted in partial fulfilment of the
requirements of the Northumbria University
for the degree of Doctor of Philosophy

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Abstract

This thesis puts forward a sociocultural approach to the learning of visual practices for designers and suggests communication tools to help educators and students to engage with practice. It is concerned with the question of how designers' visual practices are developed and fostered. From prior research in this area it was assumed that designers learn through a linguistic visual literacy approach or, at best, through a critique-based process. However, this study found that learning happens through social interactions and dialogues, which enables reflection on visual practices, informing future visual inquiry. It was found, through the provision of communication tools that externalise visual practices, that students develop into active learners, who can take greater control over their learning. Therefore, the presentation of a sociocultural approach explicitly develops knowledge of visual development, but also offers a more effective learning theory upon which to ground visual pedagogy in design.

The study employed a qualitative approach and a strategy of design-based research to externalise the underlying attributes and processes of developing and fostering visual practices through the designing, and testing, of teaching-learning artefacts. This strategy led to the employment of two research phases: design experiments with design students and user testing with design educators. A review of the literature relating to a sociocultural approach led to a design framework (a sociocultural approach, shared understanding, reflective articulation, and critical questioning of visual practices) that informed both the designing and testing during both phases of the research. The design framework was adopted to analyse and code the data gained in two stages: descriptive and pattern coding. Through the discourse of the identified patterns, theoretical descriptions of developmental learning attributes and processes of fostering designers' visual practices were formed. These descriptions were then interpreted and contextualised in design education, to present a sociocultural approach and characteristics (a shared understanding of, constructive reflection on, and critical evaluation of, visual practices), in the process outlining theoretical and practical knowledge of developing and fostering designers' visual practices.

Through the presentation of this knowledge, this study outlines opportunities to develop new directions in design education; moving from a critique-based process guided by design educators fostering individual development, to a general dialogue facilitated in collaboration with the learning community.

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Author's Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work.

Name:

Signature:

Date:

Forward: Motivation for the Study

The interest in the subject areas of visual literacy and development is rooted in my own experience as a student. It became more of a central question to me when I began developing the digital educational tool (VisualLab) that fostered first year design students' visual knowledge and skills; this informed the major project in the final year of the BA (Hons) Multimedia Design degree at Northumbria University in 2003. The initial motivation to develop VisualLab was based on a more general interest in designing an approach to help people to learn, which was rooted in finding ways to deal with my dyslexia, and the fact that I have always been encouraged to be aware of the way that I learn, and to engage in self-development. This has led me to understand that when faced with a problem, I design my own way around it, trying out new methods and adapting approaches to fit the way that I learn most effectively.

VisualLab was an educational tool that used a dozen questions (such as asking a student to consider 'what is yellow?') to assess a student's visual literacy, leading the student to a level where they could start refining their own visual knowledge and skills. During the design and testing of VisualLab, I engaged in dialogue with tutors and students as well as reading around the subject. This provided me with an initial understanding of how designers' visual practices are developed and fostered. Unexpectedly, this project brought visual literacy to life for me; I started to understand and connect to the world around me in a new way. I could understand how visual messages were communicated, e.g. when walking down a high street I could recognise what each shop sign was trying to communicate. I also gained a new appreciation of sketching, not only as a tool to communicate with others but understanding that it aided the designer to communicate with them self when working on a design problem. I started to realise how visual awareness informed my design practices, and explorations of a design problem. I was more aware of what I was seeing and why I was making these visual judgments during the design process. I realised that I was also beginning to formulate my own understanding of visual literacy as a very personal experience, through the process of designing a teaching-learning artefact for VisualLab. As this had such an impact on my design practices and my confidence in myself as a designer, it led me to question how such a personal experience could be replicated for others. In addition, I also began to question the design educator's role in fostering designers' visual practices. I had no memory of a time during my Multimedia Design degree where my visual practices had been explicitly fostered; rather, it appeared to have been implicit in the taught modules. There was one occasion when I felt that my visual practices had been considered: in the first year of the degree when I was required to complete a series of visual literacy exercises based on Wilde and Wilde's (1991) visual literacy textbook. On reflection, I can still remember these exercises clearly, as they helped me to question what I was seeing.

However, I also found myself dwelling on another part of my design education. Due to the nature of my Multimedia Design degree I found my ability to draw decreased, while my use of the computer to solve and communicate a design problem increased. I put this down to a lack of time to develop my drawing skills since time was spent on developing and learning new production skills as a Multimedia Designer, particularly as software changed from one year to the next. I found myself questioning the impact this had on my design practices.

These recollections illustrate how my visual practices were fostered through personal experiences during my design degree. However, since devising VisualLab in 2003, I recognised that there were research opportunities to describe and explore how visual practices are developed and can be fostered in design education.

Chapter One: Introduction

1.1 The Background to the Study

This study considers the question of how designers' visual practices are developed and fostered. This research question has emerged from a lack of shared understanding within design education about how students' actual visual practices develop and are fostered in design pedagogy. This lack of understanding has implications for how the best approach to fostering visual development is determined by educators. This chapter provides a comprehensive understanding of what lies at the heart of the research question. The following two questions (which are expanded in Sections 2.3 and 2.4) are answered to ground the research question in theory:

1. Why are visual abilities and skills important to a designer's practice?

Within Section 2.3, p.23 it is argued that visual abilities and skills play a fundamental role in a designer's practice, as they contribute to the designer's observational, thinking and communicative skills. This assists the designer to represent and solve problems, and to engage others in the process.

2. How are visual abilities and skills developed and fostered in design education?

In a design studio, it can be inferred how students' visual practices are developed and fostered in this environment by reviewing the educational models (experiential and reflective) used. Based on the literature presented in Section 2.4, p.27, Figure 1.1 illustrates how design students develop their visual experience through engaging with and reflecting on visual work and materials. Using the experiential educational model (Demirbaş and Demirkan 2003; Kvan and Yunyan, 2005; Demirkan and Demirbaş, 2008; Haase, 2006, p.415) in Figure 1.1, the design educator holds formal lectures or seminars on visual language and visual history, as well as asking students to complete short visual exercises to develop their critical abilities, all of which provide the students with a way to engage with, and observe, the visual world. This depth of engagement feeds into the design students' project work, where they are engaging in a visual dialogue between the materials that they use (e.g. materials used for drawing) and the learning situation; this may be an implicit way of working. However, when problems occur students reflect either in action, or let time pass and then reflect on what they did. This could involve asking other design students or design educators for help. When help is requested, the design students enter the reflective educational model (Schön, 1983, 1987; Schön and Wiggins, 1992).

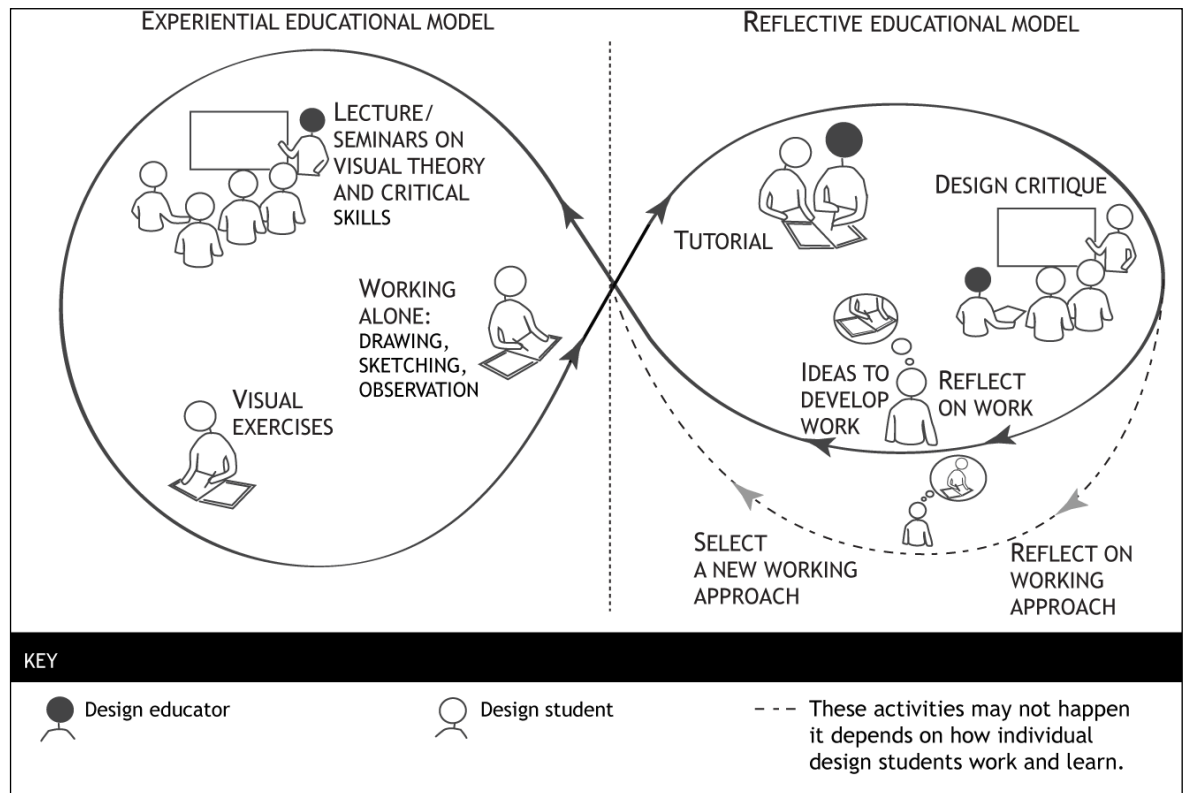


Figure 1.1: How a design student's visual abilities and skills are developed and fostered in design education

When they partake in dialogue with and receive demonstration from the design educator, the design educator is working as a coach (Schön, 1987, p.144) as they do in the design critique where students present their work; however, in this situation, students also gain feedback from the group. Reflection occurring in either of these instances could result in the students developing their work, and engaging in a further dimension of reflection on how they are working, or both. This may lead to selecting a new working approach or a different direction to explore visual materials, methods or contexts when the students returns to the experiential educational model. Therefore, experiential and reflective educational models enable design students to consider and question how they engage with a particular visual context, and the depth to which this happens.

1.2 Research Opportunities

Above, it has been argued that design students' visual practices develop through experiential and reflective educational models, learnt through five basic principles: doing, dialogue, demonstration, critical feedback and self-reflection. Following preliminary research presented in Chapter 4 these five principles were framed as a sociocultural approach (in Section 5.2.3, p.80): everyone has his or her own visual literacies, which they form through social and cultural means. In essence, designers' visual practices are constructed *in situ* through facilitating social interactions, which enables reflection.

However, as stated above and illustrated in Figure 1.1 reflection may result in the designers developing their visual work, engaging in a further dimension of reflection on how they are working, or both. This may lead to selecting a new working approach or different directions to explore visual materials, methods or contexts. Nevertheless, reflection on working approaches (as highlighted in Figure 1.1 with a dotted line) may not occur, as it is generally the responsibility of the individual to first synthesise the feedback received and then understand how to put it into action. Hence, the informal social interactions and dialogues such as design critiques, tutorials, conversations with tutors and peers that take place – where the reflective educational model occurs – present design educators with significant opportunities to facilitate students' reflection on visual practices and further explore and expand this sociocultural approach. These opportunities could increase knowledge and understanding of enabling design students to become more active learners, who can take greater control of their visual development. Therefore the research opportunities were not only to identify a sociocultural approach, but also to present a means to innovate visual pedagogy¹.

¹ For this research, pedagogy is defined as: "Any conscious activity by one person designed to enhance learning in another" (Mortimore, 1999, p.3). Mortimore's definition is more reflective of a sociocultural approach, as it suggests that pedagogical models are developed to enhance an individual's learning process. This definition underlines the opportunity for all members of a community (including the educator and peers) to enhance an individual's learning.

1.3 The Research Aims and Design Framework

This study aims to increase our knowledge of developing and fostering designers' visual practices.

Sub-aims were formulated, namely,

- To describe the learning attributes involved in the development of designers' visual practices.
- To determine processes used to help foster designers' visual practices.

A design framework forms the basis to explore and expand this sociocultural approach, which guided the investigation. The design framework in Table 5.1, pp.90-1 comprises of the underlying theory of this sociocultural approach, and demonstrates the theory through three characteristics² (a shared understanding, reflective articulation and critical questioning of visual practices), which originated from a review of the literature relating to a sociocultural approach to literacy. Each aspect of the framework described the learning attributes involved in the development of, and described processes used to foster, designers' visual practices.

² The characteristics represent a model of best practice and are a platform for discussion, for design educators to debate this sociocultural approach and promote alternative ways to develop visual pedagogy.

1.4 The Research Design

The research design is summarised in this section; the full description is found in Section 5.4, p.88. The study employed a qualitative approach and a strategy of design-based research to externalise the underlying attributes and processes of developing and fostering visual practices through the designing, and testing, of teaching-learning artefacts. The design framework guided the development of the teaching-learning artefacts. The rationale for the use of a design-based research strategy is that visual practices are fostered through informal social interactions, and only through dialogue and design decisions – which are a result of the teaching-learning artefacts – can in-depth knowledge and understanding of the research phenomena be externalised.

A design-based research strategy led to the employment of two phases of research: design experiments with students and user testing with educators. Teaching-learning artefacts were devised, through design experiments, to explore the research phenomena through the eyes of the students. The second phase uses case study research to test the teaching-learning artefacts created in the previous phase to promote a debate with educators on how to develop and foster designers' visual practices.

Dialogues on the development and fostering of designers' visual practices were collected during the two research phases. This involved the capture of:

- Design decisions on the design and development of teaching-learning artefacts.
- Verbal descriptions of the richness and complexity of behaviours in the naturalistic setting.
- Participants' interactions with the learning situation.

The design framework formed the framework for analysis – a sociocultural approach, a shared understanding, reflective articulation and critical questioning of visual practices – to reduce the data. The amount of data was reduced through descriptive and pattern coding, which led to theoretical propositions and conclusions that provide descriptions of developing and fostering designers' visual practices. These descriptions are then interpreted and contextualised in design education in Chapter 9, to present

- Theoretical knowledge of developing and fostering designers' visual practices presented in Section 9.2 in the form of three sociocultural models: Basic tutorial and critique model, tutorial and critique with formalised communication model; and reflective communication model.
- Practical knowledge of developing and fostering designers' visual practices in Section 9.3 in the form of three sociocultural characteristics to inform visual pedagogy: a shared understanding of, constructive reflection on, and critical evaluation of, visual practices.

Trustworthiness of qualitative research occurs when a study reflects reality and the participants' ideas (Holloway, 1997, p.160). Rossman and Rallis (2003, p.63) outlined two standard practices for trustworthiness: acceptable and competent (credible, systematic and rigorous, useful); and ethically conducted. These two standards for practice were observed in this study to ensure that the results produced are trustworthy. This is discussed in Section 5.4.5.

1.5 Contributions to New Knowledge

Given the importance of visual abilities in design there is a lack of shared knowledge about how visual practices develop and are fostered. It appeared from a review of the educational model that visual skills are informally and implicitly fostered through social interactions and dialogues that occur in a critiquing process, which is guided by the design educator. The significance of this study is that it has researched into how visual practices develop in the design studio, framing this understanding as a sociocultural approach. The study presents theoretical and practical knowledge to move beyond current means of fostering visual practices; providing processes to innovate pedagogy, moving from a critiquing process to a general conversation led by the community and eventually the students.

Therefore the key contributions of this study have been two fold; the first contribution developed theoretical knowledge of the developmental learning attributes and processes of fostering designers' visual practices, framing this understanding as a sociocultural approach. The second contribution built upon this foundation to develop theoretical and practical knowledge of innovating processes to foster designers' visual practices through the expansion of the sociocultural approach.

The first contribution is supported by the results of the preliminary research in Chapter 4 and data analysis in Chapter 8. That is, this study has contributed to the following findings:

- The developmental learning attribute of a sociocultural approach: Preliminary research indicated everyone has his or her own visual practices, leading to the notion that designers' visual practices develop through reflection. Data was found to support that development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices (*see* Section 8.3.3, p.185).
- The processes of fostering designers' visual practices through a sociocultural approach: On examination of the data, it was indicated that designers' visual practices are fostered through informal social interactions and dialogues. The educator creates an environment to enable informal social interactions and dialogues between students and themselves. Thus, the educator is a facilitator, guide and nurturer of individual development (*see* Section 8.3.3).

The following findings of this study (which were part of the analytical results presented in Section 8.7, p.214) support the second contribution, developing theoretical knowledge of innovating processes to foster designers' visual practices through expanding the sociocultural approach:

- **Enabling communication:** Communication tools provided common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. Feedback assimilated through the communication tools heightened an individual's awareness of their own and others' visual practices, enabling self-reflection. However, communication could be impeded by students' perceptions of peer feedback.
- **Internalisation of the communication tools:** It is suggested from the data analysis that an individual internalises the common languages that the communication tools provide, enabling the observation of visual actions, and consideration and articulation of future visual practices.

The second contribution was further supported through this study's identification of three sociocultural characteristics, providing practical knowledge of how to enable students to become more actively engaged in their visual inquiry and assist others in the learning community (*see* Section 9.3, p.228):

- **Shared understanding of visual practices:** The first characteristic is defined as a shared understanding of and reflection on a community's visual practices. Development of a shared understanding of a community's visual practices through a metaphor of looking and seeing, enables dialogue and feedback with the learning community that promotes observation, reflection and improvement in how an individual applies their visual knowledge and skills.
- **Constructive reflection on visual practices:** The second characteristic is defined as an individual's ability to self-reflect regularly on their visual practices. Facilitating self-reflection presents an opportunity to enable regular planning and analysis of visual actions, developing the ability to justify them, engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves. Enabling self-reflection on visual practices takes time, but providing a self-assessment framework that describes the process of reflecting on visual engagement enables self-assessment.
- **Enabling critical evaluation of visual practices:** The last characteristic is defined as an individual's critical abilities to evaluate and self-evaluate their visual practices. This development presents an opportunity to enable more active seers who are able to engage with the visual world and develop self-knowledge. Providing evaluative structures and metacognitive regulation using common languages assists evaluation and self-evaluation of visual practices, enabling individuals to analyse what they are seeing and develop self-knowledge of barriers and areas of improvement.

1.6 Thesis Orientation

It is necessary to state at the outset where the research progressed to and the journey taken, as this may not be apparent to the reader. A sociocultural approach was not apparent from the outset of the research programme; it began with an assumption that the development of a designer's visual knowledge and processes (visual reading and writing skills) occurred on an individual basis through cognitive means alone, and required formal training. This assumption was based on a psycholinguistic view of language, which has long underlain visual literacy.

The research question that led to framing this sociocultural approach was: how can a designer's visual knowledge and processes (visual reading and writing skills) be fostered in a digital era? Preliminary empirical research into designers' digital visual development (presented in Chapter 4) proved inconclusive; however it led to more revealing, insightful observations informing how designers' visual practices develop. This led to a significant shift in understanding: visual development does not occur through cognitive means alone, which resulted in the adoption and definition of a sociocultural approach to understanding designers' visual development (*see* Chapter 5). Consequently the research focus and question (digital visual development to the development and fostering of designers' visual practices), paradigms (quantitative to qualitative), design and strategy (positive to design-based research) shifted.

In essence, the ontology of this thesis has clearly developed since its inception. That is, a universal knowledge of visual language and the processes of using this knowledge can be learnt through cognitive means, based on a psycholinguistic perspective of language and literacy. The preliminary research led to a new ontology; that everyone has his or her own visual practices, which they form through social and cultural means. This new ontology is based on epistemological perspectives of sociolinguistics and sociocultural literacy.

The framing, further exploration and expansion of the sociocultural approach are described over ten chapters. What follows is a clear indication of where details of this progression can be found throughout the thesis.

This chapter has highlighted the background and research opportunities of this study. The statement of aims and design framework was formulated against this background. Thereafter a discussion on the research design and contributions were described. Chapter 2, the literature review, describes how design students' visual practices are currently fostered and identifies characteristics that inform how visual pedagogy can be enhanced when considering how a

designer's visual knowledge and processes (visual reading and writing skills) can be fostered in a digital era.

Chapter 3 presents the research philosophy, strategy and design, influenced by a psycholinguistic approach to language and literacy, and educational research.

Next, Chapter 4 presents the preliminary research that led to insightful observations from which the assumption regarding designers' visual development, held at the outset of the research, was questioned.

Chapter 5 presents the shift in the understanding and researching of designers' visual practices, through defining a sociocultural approach. This shift reflected the study's change of linguistic fields (psycholinguistics to sociolinguistics) and research question and paradigms (quantitative to qualitative), based on the observations made in the preliminary research. The chapter goes on to explore and expand this sociocultural approach, based on these preliminary observations and a new design framework and research design (outlining two key phases of research – design experiment and user testing) were formed.

Chapter 6 presents the first research phase – an investigation into fostering designers' visual practices through a design experiment method. This involved the design and implementation of teaching-learning artefacts, guided by the design framework. The intention of this chapter is to contextualise the findings presented in Chapter 9.

Chapter 7 presents an account of two case studies, each showing how a design educator implemented the teaching-learning artefacts presented in Chapter 6. Again, the dialogue on the teaching-learning artefacts contributed to the final research analysis and findings.

Then Chapter 8 presents the data analysis that led to formulating descriptive statements of developing and fostering designers' visual practices.

These descriptions are then interpreted in Chapter 9, to present the theoretical and practical knowledge to generate the research question and aims; theory of a sociocultural approach and sociocultural characteristics – a shared understanding of, constructive reflection on, and critical evaluation of, visual practices.

Finally, Chapter 10 presents the conclusions of this study, reflecting on the research project sharing lessons learnt, and outlining the limitations and recommendation of the research, ending with a summary of the key contributions to knowledge.

1.7 The Study's Participants

The participants that were involved in this study were chosen from the original focus: investigating and fostering students' digital visual skills. The preliminary research involved multimedia students, as they are required to change their way of working visually as digital practices evolve. When the preliminary research and the focus changed to investigation into designers' visual development, it was decided to involve the same participants as the design framework presented in Table 5.1, pp.90-1 reflects the need to involve design students that deal with changes to their visual practices. For this reason, multimedia students remained relevant to the study.

Chapter Two: Literature Review

2.1 Introduction

This chapter presents a literature review that contributed to the original focus of the thesis: how a designer's visual knowledge and processes (visual reading and writing skills) can be fostered in a digital era. This literature presents descriptions of (a) visual language and literacy acquisition, (b) the importance of visual abilities in a designer's professional practice and, (c) fostering a designer's development of visual knowledge and processes (visual reading and writing skills). From these descriptions it is argued that visual skills are fostered through the experiential and reflective educational models that are promoted within design education; basically learnt through five principles: doing, dialogue, demonstration, critical feedback and self-reflection. Based on these descriptions two characteristics of best practice are outlined to inform how visual pedagogy in design education can be improved in a digital era.

2.2 Visual Language and Literacy Acquisition

This section presents a general description on visual language and literacy acquisition, in order to contextualise how a design student becomes visually literate in design education. The study of linguistics highly influences language acquisition, for example, if it is known how a language is constructed and used, more knowledge is created which informs language acquisition. Therefore the relationship between the study of linguistics and literacy is presented first, followed by the characteristics and a description of how visual language is fostered.

Linguistics is “the scientific study of natural language” (Lyons, 1968, p.1; Aronoff and Rees-Miller, 2003, p.xiv) and is concerned with intersubjective understanding of language structure (phonetics, phonology, morphology and syntax) and meaning (semantics) (Aronoff and Rees-Miller, 2003, pp.xiv-xv). The following two fields and theories of linguistics are relevant to this investigation on visual development:

- **Psycholinguistics:** This area of linguistics studies psychological aspects of a human’s ability to read and write, store and retrieve information, and acquired languages (Field, 2004, p.xi). Chomsky greatly influenced the development of this field of linguistics, moving beyond the study of an individual’s language to the determination of a universal property of human language – a theory of universal grammar (Cook and Newson, 2007, pp.1-10). Chomsky made the study of linguistics a cognitive problem (Birdsong, 1999, p.171). Chomsky understood that our knowledge of language is universal and innate, and that “children have a generic predisposition to acquire linguistic knowledge in a highly specific way. He posited innate principles that determine the form of acquired knowledge” (Aronoff and Rees-Miller, 2003, p.101). Chomsky (1955, cited in Kottak, 2005, p.322) “argue[ed] that the human brain contains a limited set of rules for organizing[sic] language”. For this reason there is an assumption that all language has a common structural basis, which Chomsky referred to as universal grammar.
- **Sociolinguistics:** This area of linguistics involves the study of language in society (Aronoff and Rees-Miller, 2003, p.563). Bakhtin (1935; 1981), Gumperz (1986), Halliday (1975) and Hymes (1974) derived a sociolinguistic theory of language, stating “language is made as people act and react to one another” (Cairney, 1995, p.1). Linguists in this field “are interested in explaining why we speak differently in different social contexts, and they are concerned with identifying the social functions of language and the ways it is used to convey social meaning” (Holmes, 2001, p.1). By explaining the use of language, knowledge of how language and social relationships work is acquired, i.e. “the way people signal aspects of their social identity through their language” (Holmes, 2001, p.1).

Each of these fields of linguistics offers a different way to understand literacy and language acquisition. Chomsky (1979) proposes that “all children share the same internal constraints which characterize[sic] narrowly the grammar they are going to construct” (p.98). Thus a psycholinguist would understand language acquisition to be inborn, cognitively based and formulated from innate processes, that nature is more than nurture. On the other hand a sociolinguist would understand literacy from a sociocultural perspective, with Street and Lefstein (2008, p.143) suggesting that literacy practices are the cultural use of written language in daily life, comprised of sets of literacy events (Barton, *et al.*, 2000, p.13). Literacy events are “any occasion in which a piece of writing is integral to the nature of participants’ interactions and their interpretative processes” (Heath, 1983, p.93). Literacy events always exist in a social context (Street and Lefstein, 2008, p.144); therefore literacy is acquired by individuals participating in cultural and social events; basically what it means to be literate, would depend on what is happening in the society people are situated in.

Literacy has been defined in many ways over the past fifty years, but is most commonly seen as the ability to read and write (Lankshear and Knobel, 2003, p.11; Gee, 2008, p.42). Illiteracy has always been measured against literacy: “Illiteracy can be understood only in relation to literacy; it is the absence or lack of literacy, rather than a concept with its own set of characteristics and standards” (Fingeret, 1994, p.3). The concept of literacy appears to shift, and cannot be “define[d] in isolation from a specific time, person, place, and culture” (Fingeret, 1994, p.3), it changes depending on what the basic need is to communicate meaning in a society. For example “almost 100 years ago, the proxy for literacy in the United States was being able to write one’s name” (Office of Technology Assessment, 1993, p.105). Over the last century, the meaning of literacy has become more complex and standards have been raised (Office of Technology Assessment, 1993, p.105).

Having accepted that the notion of literacy shifts, understanding visual development on a fundamental level comes from comprehending how visual language has been studied. Visual language research is underdeveloped, as research has taken place in a variety of fields, each unaware of the other and with differing aims (Marriott and Meyer, 1998, p.2). Some aim to understand how it can be classified; others develop guidelines to inform the design of new visual languages or determine what makes one better than others (Marriott and Meyer, 1998, p.2). Nevertheless, a good starting point would be to state that visual language exists as, “verbal language, visual grammar, syntax and vocabulary have been ascribed to visual language” (Avgerinou and Pettersson, 2010, p.35). All of these visual researchers have attributed linguistic terms and concepts to visual language; this relationship is made to better understand its components. Most of these connections with linguistic terms have been based on Chomsky’s

theory of universal grammar; as Gozemba (1975, pp.12-3) contends, if a universal grammar of speech can be determined, there can also be a universal grammar of visual forms.

“Languages differ in their ability to express concepts with precision and flexibility” (Pettersson, 1993, p.122); however the structure and characteristics of a verbal language differ from those of a visual language. As Dondis (1973) contends “visual literacy cannot ever be a clear-cut logical system similar to language. Languages are made-up systems, constructed by man to encode, store, and decode information. Therefore, their structure has a logic that visual literacy is unable to parallel” (p.12). For example,

“all the elements of an image are related in spatial arrangements...in writing, much of the meaning of the text and of its parts derives from the arrangement of syntax; in the images, much of the meaning of the image derives from the spatial relations of the depicted elements.” (Kress, 2003, p.20)

For this reason visual meaning is gained from the spatial layout, not from a linear structure. The basic symbols of a visual language “are not encountered sequentially but rather seen together at a glance” (Marriott and Meyer, 1998, p.1). Also visual language is holistic, linking affective and aesthetic mental process and later cognitive processes (Taskahashi, 1995, cited in Dake, 2005, pp.11-2; Avgerinou and Pettersson, 2010, p.36); thus it does not have a logical structure. In addition, as with any other language, visual language is culturally specific (Kress and van Leeuwen, 2006, p.4; Avgerinou and Pettersson, 2010, p.38).

“Everyone appreciates the need to learn the meaning of words. We also have to learn to read and understand the meaning of visual information and the different components of visual languages” (Pettersson, 1993, p.136). Therefore, visual language must be learnt. “In visual language, meaning is apparent on a basic level, but visual language is a complex code that must be learned for true comprehension. We have to learn how to read visuals” (Avgerinou and Pettersson, 2010, p.36). A common phrase that has been used to discuss visual language development is visual literacy. Visual literacy is considered important in areas as diverse as art education, psychology, linguistics and the language arts (Hortin, 1994, p.21). Each has defined it in a different manner appropriate to their field, and therefore it has been problematic to develop consensus and form one definition of its meaning. Avgerinou (2001) is a pioneer in the visual literacy field and her writing articulates current thinking on visual literacy. She conducted a comprehensive review of visual literacy definitions from different disciplines and created an index, developed and validated through a series of meetings with the International Visual Literacy Association. Avgerinou (2001) in her final definition states:

“... in the context of human, intentional visual communication, visual literacy refers to a group of largely acquired abilities, i.e. the ability to understand (read), and to create (write) an image, as well as to think and learn in terms of images.” (p.xv)

“VL[visual literacy] is a cognitive ability but also draws on the affective domain. In other words, VL involves cognitive functions such as critical viewing and thinking, imaging, visualizing, inferring as well as constructing meaning; but also communicating as well as evoking feelings and attitudes” (Avgerinou and Pettersson, 2010, p.36). Avgerinou (2001) has been fundamental in creating an index of twelve visual abilities, which she defined as; visual discrimination, visual association, constructing meaning, knowledge of visual vocabulary and definition, knowledge of visual conventions, visual reasoning, visual reconstruction, critical viewing, visualization, visual memory, visual thinking, and finally reconstruction meaning.

When considering how visual language is acquired, Myers (1985, cited in Pettersson, 1993) presented the following ‘principles of visual literacy theory’:

“Visual languaging ability develops prior to, and serves as the foundation for, verbal language development.

Development of visual lanaguaging abilities is dependent upon learner interaction with objects, images and body language.

The level of visual language development is dependent upon the richness and diversity of the objects, images, and body language with which the learner interacts and upon the degree of interaction.

The level of visual language development is facilitated by direct learner involvement in the process and equipment used to create objects, visual images, and body language.” (pp.137-8)

However, the ability to acquire visual reading and writing skills is not as clear-cut as developing processes and using equipment to have a rich interaction with a visual situation. Sinatra (1986, pp.5-28), Bamford (2003, p.4) and Mitchell (2008, pp.13-4) all contend that there is a basic visual reading level which develops without formal teaching, as it is naturally acquired; whereas developing visual writing skills requires formal teaching. Mitchell (2008, pp.11-4) draws on Stafford’s work to argue that seeing at a basic level is natural, a visual competence that is a necessary skill; to develop visual literacy, a basic level of skill is not sufficient, and a more advanced level of ability in techniques of visual observation is required. Bamford (2003) suggests that “visual literacy is a gradual process of gaining greater sophistication of perception, conception and visual and linguistic vocabulary [visual syntax and semantics]”(p.4); going on to contend (p.5) visual reading skills tend to use lower order thinking skills, which are learnt with little help from the educator. “High order visual literacy skills do not develop unless they are identified and

“taught”” (Ausburn, 1978, p.288 cited in Bamford, 2003, p.5). Sinatra (1986, pp.5-28) has provided the most comprehensive distinction between a basic stage of visual engagement with the world, and the abilities required in the creation of aesthetics, when connecting visual literacy to oral and written development. Sinatra (1986, pp.6-10) argues that there is a basic stage of visual reading, which he refers to as primacy of visual literacy. At this basic stage, children develop their ability to read visuals through an active engagement of viewing and exploring the environment. Skills are developed through social activities (from cooking to finger painting), and in the process a child learns to compare, contrast, categorise, etc. Such interactions develop mental schema to engage with the world; however, Sinatra (1986, p.10) is not clear on whether this stage is formally taught or whether a child already has visual conceptualisation skills that aid in the development of oral and written abilities. Following a basic stage of visual literacy, Sinatra (1986, pp.28-9) presented a higher stage of development – visual literacy as representational communication, or the ability to write visually. This stage “is based on humankind’s desire to represent meaning in nonverbal, creative, and symbolic ways” (Sinatra, 1969, p.28). The second stage of visual literacy, which has “direct linkage to the basic stage, is composed of the receptive process of imagining or composing, the expressive processes of producing or creating, and the interactive effects of aesthetic engagement and appreciation” (p.29). Comprehension at this stage comes not only from imagining (composing) and producing (creating) to develop aesthetic engagement, but also from engaging with the basic stage of visual literacy, as well as oral and written processes (p.29).

Having discussed visual language and literacy acquisition from a psycholinguistics viewpoint, where there are two cognitive levels of development involved in the reading and writing of images, it is important also to consider visual language and literacy acquisition with particular emphasis on the rapid development of technology. These new developments in communication have resulted in images being used to present more complex and diverse information (Bamford, 2003, p.7), as well as to manipulate viewers’ perceptions. This poses the question of whether these new developments in communication have changed what it means to be visually literate in a western society, and whether design students require enhanced visual reading or writing skills.

When considering if enhanced visual reading skills are necessary, it is useful to begin with the idea of image manipulation. “Image manipulation implies the improper control of people’s perception of a given reality through the use of pictures” (Pettersson, 2002, p.5). Pettersson observed that technology does not have to be involved in image manipulation, as the meaning of a visual can be adjusted through the image selected, how the image is trimmed, or a caption placed beside it – all processes which alter visual meaning (Pettersson, 2002, pp.5-6). However technology makes it easier to manipulate a viewer’s perception of reality, as well as changing the conditions for the use of images, as they can now be created, reviewed and shared more easily (Pettersson, 2002, p.6).

Imaging software makes it easy to produce images (Bamford, 2003, p.6) and requires the person creating the image to engage with different visual languages and practices. As Cleveland (2004, p.113) argued, each new digital hardware and software development produces a new form of visual grammar derived from how inscriptions are left on the page. Cleveland (2004) used Kress and van Leeuwen (1996) who used the term inscription to mean:

“in graphic design the marks which make up the images, text and graphics on a printed page...have inscription properties. These are closely related to technology because the dependence of technology is the defining feature of this visual semiotic. The materials applied to surfaces, the makeup of the surfaces, and the tools used in the process of reproduction, affect inscription. Systems of meanings are coded in the materials used. For example, paper finishes and weight in magazines can signify different qualities depending on the choice. Technology enters the semiotic process through the kinds of meaning inherent in the way it leaves its marks. Kress and van Leeuwen [1996] identify three classes of inscription technologies. (1) Technologies of the hand – those aided by the hand or articulated by the hand. Represented by hand tools such as brushes and pencils. (2) Recording technologies – those which [sic] automate analogical representations. For example, audio recordings, film and photography. (3) Synthesizing technologies – those based on digital representations using a technological interface. For example, the use of computer software and digital devices such as the mouse and keyboard” (p.114).

For example, with each revision of Adobe Photoshop[®], new production tools and processes have to be learnt. Furthermore Schiller (1987, cited in Pettersson, 2002) argued that “the notion that all the different viewpoints of visual literacy show that every visual medium has its own characteristic form. Thus, there are clearly different visual literacies, and there are different skills to be learned in terms of their characteristic teaching and methods of expression” (p.77). This conforms to Schiller’s point that technology is widening what it means to be visually literate.

In summary, this section uses linguistic fields to discuss visual language and literacy acquisition, and demonstrates that the majority of literature on visual language is linked to linguistic concepts, particularly drawing on the theory of universal grammar. Furthermore, visual language exists and is generic, paralleling verbal language, and is predominately perceptually based; however it is also affected by cultural influences. The literature indicates that visual development happens at two levels in an individual; on a basic level of viewing, and a more sophisticated level of constructing meaning. These understandings of visual language and literacy acquisition mainly draw on a psycholinguistics perspective; of which Solsken (1993) has concisely summarised a psycholinguistic viewpoint of literacy and learning:

“Literacy is regarded as a body of cognitive knowledge about written language and a set of processes for using that knowledge; learning is seen as the gradual development over time of that knowledge through and those processes on the basis of biologically given properties of the mind and exposure to and interaction with written language. On the basis of these assumptions, research from this perspective seeks to identify the knowledge and

processes that individuals possess, the order in which they are acquired, and the environmental conditions which best support their acquisition.” (p.3)

Solsken’s (1993) summary offers a basis from which to understand, observe and foster designers’ visual development from a psycholinguistic viewpoint of language and literacy acquisition:

- Understand a designer’s visual development is to view learning as the gradual development over time of a cognitive and universal visual knowledge through biological processes (visual reading and writing skills) and experiences with visual texts.
- Observe a designer’s visual development through investigating individuals’ visual knowledge and biological processes (visual reading and writing skills).
- Foster a designer’s visual development through coaching a designer’s knowledge of visual language to enable them to read, write and think with images in any context. A design educator would achieve this by teaching visual knowledge and providing students with opportunities to engage in physical and cognitive experiences that enable them to create their own understandings. Such a perspective encourages social interaction to challenge and reform students’ knowledge constructions³.

However from a sociolinguistics perspective, which is the study of how language is used in society, there is an opportunity to understand the visual knowledge design students are required to communicate in an increasingly technological society. It can be concluded that visual literacy seems to be grounded on linguistic concepts, especially psycholinguistics. Nevertheless it is important to state that there is a growing, but as yet unestablished, theory of a sociocultural viewpoint of visual literacy, which will be discussed and become more prominent as the thesis progresses, starting in Chapter 5.

³ This understanding of visual pedagogy has been developed from Moje’s (2000, p.110) understanding of cognitively-based pedagogy which is similar to the linguistic perspective.

2.3 The Importance of Visual Abilities in a Designer's Professional Practice

This section reviews the nature of design abilities to understand how the visual abilities fit within a designer's practice. Cross's (1990, p.132) seminal work on design ability summarised it as the ability to:

- Produce novel, unexpected solutions.
- Tolerate uncertainty, working with incomplete information.
- Apply imagination and constructive forethought to practical problems.
- Use drawing and other modelling media as means of problem solving.
- Resolve ill-defined problems.
- Adopt solution-focusing strategies.
- Employ abductive/productive/appositional thinking.
- Use non-verbal, graphic/spatial modelling media.

These design abilities identified by Cross imply that visual abilities are used throughout a designer's practice; from a designer communicating within themselves, to solving ill-defined problems (involving structuring the problem, framing the problem, finding solutions to problems and development of strategies) to producing a solution and communicating it to others (e.g. presentations). The role of visual abilities in design practice is explored below with reference to a designer communicating with themselves (design thinking) and others (production thinking).

2.3.1 Visual Abilities in Designers' Design Thinking

Design thinking⁴ employs visual thinking and reasoning abilities to allow a designer to communicate with themselves, enabling them to:

1. Observe and analyse the world: McKim (1980, pp.45-75) understands seeing to be related to thinking in several ways; as the ability to externalise thinking, recentralising (e.g. travelling to a new place leading to the development of a new way of seeing), and different ways of drawing (from doodling or drawing upside down) allows the designer to analyse and search for patterns.

⁴ Kress and van Leeuwen (2001) defined designers' design thinking thus: "design stands midway between content and expression. It is the conceptual side of expression, and the expression side of conception. Designs are (uses of) semiotic resources, in all semiotic modes and combinations of semiotic modes. Designs are means to realise discourses in the context of a given communication situation. But they add something new: they realise the communication situation which changes socially constructed knowledge into (inter-) action" (p.5). In addition, Lawson (1994, p.132) contends that imagining and reasoning are the most important types of design thinking. Imagining draws on a person's experience in an undirected openness; conversely, reasoning is directed to a conclusion leading to concept formation and logical problem solving. For the purpose of this research, Kress and van Leeuwen's and Lawson's understanding of design thinking is used as the basic to explore visual abilities that enable designers to communicate with themselves.

When searching for patterns, the ability to develop analytical skills is needed in order to understand what is worth observing. This ability is also required when considering the ability to perceive proportion and the ability to understand the object's relationship to the space around it. Each of these activities encourages increased perceptual awareness and clarity, enabling the designer to observe patterns and analyse the world around them. The process of seeing patterns, then analysing them, is thought to be "the natural sequence of all visual thinking processes" (McKim, 1980, p.69). Avgerinou (2001, pp.80-4) understands that the ability to interpret visual meaning requires critical thinking and viewing skills to:

- (a) Identify visual elements and syntax used.
- (b) Analyse visual messages to understand (i) the meaning intended by the creator, (ii) how the image persuades or manipulates the viewer, (iii) hidden meaning, and (iv) the effects of the medium on the message.
- (c) Evaluate (i) the validity of the information communicated in the visual message, (ii) how successfully a visual communicates meaning, and (iii) evaluating the aesthetic quality of a visual.

Also, in addition to critical skills, when a designer is seeing the world around them and engaging in visual thinking, they must be able to be open and empathetic in order to read the emotions and feelings residing as components within the visual language (Moore, 2003, p.28; Valentine, 2004, p.79).

2. Develop an understanding of a design problem and solution: Sketching enables a designer to experience the visual thoughts presented in their imagination. The process of sketching is an intuitive process, where visual synthesis occurs between what was externally and internally seen in the mind's eye, enabling a tacit judgement to be transformed into ideas (Schön and Wiggins, 1992; Goldschmidt, 1994). Valentine (2004) emphasised this point when stating that:

"Visual thinking methods are a gateway for listening to and observing rhetoric as a tacit process of decision making. Through drawing, a conversation is concluded between the mind of the drawer and other physical processes of drawing itself. Attention to and awareness of the mind's contribution to the conversation allows an individual to listen to the tacit dimension or rhetorical patterns of decision making. Attention and awareness of the process of drawing allows an individual to observe rhetorical reasoning." (p.78)

This dialogue between the designer and their hand-sketch was thought by Moore (2001, [online]) to provoke the senses, engaging the sub-conscious and emotional mind:

"Drawing is also thought to engage "visual and tactile" rather than "distant and abstract ideas" [Hansen, 1992]. The implication is that wielding a pencil, somehow irritates or provokes the senses, enabling 'traditional visual skills' to be developed... The senses,

stimulated by the process of drawing, may be able to sense or discover the essence of what is being drawn and capture its ‘embodied meaning’ or ‘physical materiality’ using a kind of sensory, wordless perception and communication.”

Fish (2004, p.151) supports the view that sketching stimulates and enables access to long term memory, and “exploit[s] unconscious processes”. He also raises an important point surrounding human development – brains have evolved to be able to make quick decisions and therefore we have a limited working memory (Fish, 2004, p.158). In essence, Fish understands that a sketch enables a designer to record their visual thought process and access long-term tacit visual knowledge.

Therefore visual design thinking for the purpose of this research is understood to inform how a designer communicates within themselves, through the visual discrimination and awareness that informs how a designer observes the world, and through the process of sketching, develops an insight into the design problem and solution.

2.3.2 Visual Abilities in Designers’ Production Thinking

Designers’ production thinking⁵ employs visual abilities to communicate⁶ their ideas and associated information, visually to others. Avgerinou (2001, pp.80-4) has listed the accepted construct of visual literacy, and the activities selected below are processes involved in the articulation of visual meaning:

- Mental visualisation and conceptualisation through “recalling ideas and feelings stored as images; constructing mental images; conceptualizing and expressing visually; conceptualizing visually and expressing with both visual and verbal components; conceptualizing verbally and expressing visually; conceptualizing verbally and expressing with both verbal and visual components” (p.83).
- “Designing the visual: considering the intended audience; using the elements of visual design such as color[sic], form, light, shape, line; applying the principles of compositions such as balance, rhythm, repetition and unity; using visual clues to indicate movement, passage of time, distance; combining verbal and visual elements” (p.83).
- “Making it visible includes: selecting an appropriate medium; utilizing the equipment, materials and techniques of the medium; using presentation technology” (p.83).

⁵ Kress and van Leeuwen (2001) defined designers’ production thinking as: “communicative use of media and material resource and visual...[and therefore]...the meaning is given through physical process of articulation and the physical quality of the material” (p.21). For the purpose of this research Kress and van Leeuwen’s understanding of production thinking is used as the basis to explore visual abilities that enable designers to communicate information and ideas to others.

⁶ Visual communication is associated with a number of theories such as aesthetics, perception, representation, visual rhetoric, cognition, visual semiotic, reception, narrative, visual literacy and culture studies; it is truly multi-disciplinary (Smith, *et al.*, 2005).

Based on the above, visual production thinking is, for the purpose of this research, understood in terms of a designer visually communicating information and ideas through three components: (a) knowledge of visual language and visual communication, (b) knowledge and skills of medium(s) and material resources used to communicate a visual message. Every visual medium, as it develops, has its own visual properties and ways of working (Schiller, 1987, cited in Petterson, 2002, p.77). And finally, (c) knowledge of their audiences, as Thompson (1994) comments:

“When creating a visual it is important to begin with a careful understanding of the audience and their characteristics as related to the topic. Materials used to introduce a new topic will need different characteristics and therefore be created differently than materials used to review a topic with which the audience is already familiar.” (p.181)

Cross’s work on design ability has been influential. However, more recently, work by Michlewski (2008) has described design in terms of design attitudes rather than design ability, recognising that designers can add value in business on a more strategic level. Michlewski (2008) outlined five attitudes of a design profession, of which the attitude of polysensorial aesthetics relates to the value of visual abilities in a design practice, defined thus:

“From a general perspective this concept represents designers’ fondness for using their aesthetic sense and judgement whilst interacting with the environment. We know that one of the most important skills a designer obtains is the ability to visualise and ‘think through drawing’ (Schön, 1983; Cross, 1999). Apart from that there is also a ‘visual discourse within yourself’ (Senior Designer WO). As one of the informants notes, engaging the visual has the potential to break the creative deadlock and stimulate dialogue [...]

Despite the visual component (which arguably is the most prominent), they also seem to appreciate the importance of other kinds of sensorial stimuli[...] In the process of compiling together different constituent elements in order to come up with a solution, designers often conspicuously draw from many disparate sensorial sources’ (Co-founder WO [Wally Olins]).” (p.382)

In summarising this section we see that, whether visual abilities are considered part of a design ability or a design attitude, it is clear that visual knowledge, abilities and skills are seen to be fundamental to a designer’s practice, contributing to their observational, thinking and communicative skills. This assists the designer to represent and solve problems, and to engage others in the process.

2.4 Fostering a Designer's Development of Visual Knowledge and Processes

Currently the literature in design education does not explicitly describe how a design student becomes visually literate, which is surprising given the fundamental role of visual abilities and skills within a designer's practice. As already highlighted in Section 1.1, p.1 it can be implied how a design student visually develops by reviewing the educational models (experiential and reflective) used in design education. A studio setting is considered an educational base for design education, and the concept of experienced-based learning has been generally accepted (Oxman, 1999, p.160). The design studio should function as a learning centre, a complex social organisation (Deasy and Laswell, 1985, cited in Demirbaş and Demirkan, 2003, p.438) and a simulation of the real situation (Demirbaş and Demirkan, 2003, p.438). Demirbaş and Demirkan (2003) defined the design studio process as "not only a lecture given, but also a social interaction between the teacher and the students and among the students. In a way, communication is a key word in defining the design studio" (p.438). Demirbaş and Demirkan (2003), Haase (2006, p.415), Kvan and Yunyan (2005), Demirkan and Demirbaş (2008) connect Kolb's (1984) Experiential Learning Theory (ELT) to a design studio environment, where learning is defined as "the process whereby knowledge is created through transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p.41). Kolb's ELT comprises 4 elements: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Demirkan and Demirbaş (2008) used Kolb's ELT to describe how learning happens in a design studio:

"In this cyclical process, learning begins with what Dewey (1938) described as a 'problematic situation': a design problem given to the design student in the studio. The problem can be explained as a discrepancy between the real and ideal, between intention and action that stimulates the learner to acquire new information as part of an active search for alternative design solutions...During a design project, the student transforms a field of inquiry (problem) into a proposition or scheme (alternative solution). The learning process is characterised by continual dialogue. Students learn from sharing information with one another and instructors, and from the critiques of the jury members. The most important learning experience comes from what is known in other disciplines as self-reflection, a skill central to the acquisition of all design knowledge and skills, and one that is consciously developed ([Newland *et al.*, 1987] and [Demirbas and Demirkan, 2003])." (p.255)

It is easy to understand how the reflective educational model can be used in conjunction with an experiential educational model, having understood Demirkan and Demirbaş description of the ELT in the design studio. Where the design students start with a problem, they continually reflect during the project and on feedback received, and are able to self-reflect, forming design knowledge and skills that can be taken into the next learning situation. Schön's (1983; 1987) and Schön and Wiggins's (1992) works contribute to the value of reflection in design, by presenting an

understanding of how reflection occurs during design projects and the role that the design educator plays in the reflective process. During a design project, students engage in their work, employing knowing-in-action and referring to knowledge used in a procedure that may be tacit – such as the sensations of the tools in the hand – and, therefore, implicit in their actions (Schön, 1987, pp.22-6). Schön and Wiggins (1992) observed the process of designing as being a reflective dialogue between the designer and their materials. They believed that the process of sketching not only enables a conversation with the mind but also involves the medium and materials with which the drawing is conducted. They use design sketching to illustrate reflection-in-action, arguing that designers first see then move design objects. The structure of design is a structure of seeing-moving-seeing, an alternation of designing (moving) and discovering (seeing):

“He categorized the kinds of seeing as (1) literal visual apprehension of marks on a page, (2) appreciative judgements of quality and (3) appreciation of spatial gestalts (Schön, 1992; Schön and Wiggins, 1992).” (Blackwell, 2001, p.141)

Schön (1987, p.27) also describes a scenario of a designer carrying out a routine procedure that unexpectedly fails; this leads them to reflect-in-action on the situation to solve the problem. To elaborate on the effect of this reflection, Dewey (1991) contends that the reflective process develops a person’s beliefs, when defining reflective thought as:

“Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and further conclusions to which it tends, constitutes reflective thought...it is a conscious and voluntary effect to establish belief upon a firm basis of reasons.” (p.6)

The link between reflection and beliefs is important as it is not only concerned with fostering design knowledge and skills, but understanding reflection as a means of developing a designerly way of being in the world.

Schön (1983; 1987) describes the relationship between students and their tutor in a design studio environment, further explaining how both experiential and reflective educational models are supported in design education. Schön defined the role of the student as an active “practitioner that becomes a researcher [...] and engages in a continuing process of self-education” (1983, p.299). In doing so, the student assumes a central role, and the model of the instructor as expert gives way to that of the instructor as facilitator (Schön, 1983) or coach (Schön, 1987, p.144); a design instructor who provides information is a communication specialist, engaging in reflective conversation in order to facilitate the student designer’s inquiry and professional growth. Interactions between students and coach are not only by verbal description, but by other media of performance (Schön, 1987, p.163). Schön explains two reasons for this: the first is that for those students who can recognise design qualities, verbal description alone would be sufficient. However, others may not

be able to recognise design qualities – such as the softening of hard-edged forms – therefore it is unlikely that verbal description would help. Secondly, some instructors may not be able to explain what they mean by phrases such as ‘good form’ (Schön, 1987, pp.159-160). Therefore a coach not only gives advice, description, criticism and questions, but will also demonstrate by example. During this process the coach is modelling appropriate behaviour, instilling design values, design strategies, and thought processes (Schön, 1983, p.103). The students observe and listen, then imitate their coach, reflecting on the coach’s demonstration or criticism received, thus leading to the development of a new set of drawings (Schön, 1987, pp.114-5). When the dialogue works well, both instructors and students engage in reflection-in-action: the students reflect on their knowing-in-action and the tutor seeks to understand what the student wishes to learn, by understanding how they know and thereby revealing what they have misunderstood in order to help them (Schön, 1987, p.163). After the dialogue the student may reflect on their own way of working, understanding what is hindering them from learning, thus taking responsibility for their own education. Schön (1987, p.165) contends that students must be able to take part in the dialogue and learn the art of reflection-in-action with their coach if they are to learn the substantive practice, as this presents students with more opportunity to gain useful lessons for designing. Demirbaş and Demirkan (2003) have built on Schön’s understanding of the role of design instructors in the studio setting to contend that:

“Each design instructor has his/her strategy while communicating with the student. Some prefer telling and others prefer demonstrating. Actually, most design instructors prefer both. Thus it can be said in the design studio, design instructors’ telling and showing are interwoven, as are the students’ listening and imitating. Each process can help to fill the communication gap inheritant [sic] in the other.

...The student reflects on the action of the instructor and the instructor reflects on the action of the student. These mutual reflection activities form the critique process. In this sense, understanding the learning process of design students is critical for the design instructor for better teaching.” (pp.439-440)

Schön’s description of the student and coach is referred to as a master/apprentice relationship, where “the students learn to design through a process of watching and doing – much like how an apprentice learns a trade from the master” (Bose, 2007, p.133). Thus, a master/apprentice model of education sets the scene for students to develop their design values; as the students acquire their design profession, that is their attitudes, work-habits and values, through socialisation and enculturation (Holm, 2006, p.68). This is recognised to be of importance as it emphasises the need to understand how interactions between master and apprentice occur, as this would lead to an understanding that visual development is implicitly fostered in design education.

This section has argued that a designer's visual knowledge and processes (visual reading and writing) are fostered through experiential and reflective educational models (*see* Figure 1.1, p.3), which design education promotes in a studio environment; learnt through five basic principles: doing, dialogue, demonstration, critical feedback and self-reflection. That is, an experiential model of learning provides students with a setting in which they can interact with different contexts and gain further visual experiences. This presents design students with a visual dialogue between the materials they use and the learning situation, and some of the experiences gained from such experiential learning may be implicit. The design tutor assists students to develop their interactions with the design problem through demonstration and dialogue, providing direction for students to further explore, and enabling further development of their visual experiences. Therefore, the design students are assisted in reflecting on their visual experiences, through engaging in a dialogue with a design tutor.

At this point it is worth understanding how visual skills progress in a studio environment. As there is little knowledge about how visual skills develop in a design studio, it can only be suggested from understanding how design skills progress in a studio environment. Ho (2001), Kavakli and Gero (2002) and Cross (2004) all suggest that a novice designer focuses on approaching the problem using trial and error techniques and declarative knowledge (know-what). As the designer becomes more competent, the use of trial and error techniques decreases and the individual develops procedural knowledge and strategic skills (know-how, and knowledge of how to structure a problem) and therefore becomes more focused on the solution. Dorst and Reymen (2004) set out to understand the level of expertise in design education using Dreyfus's model of learning, which consists of seven distinct levels of expertise: novice, advanced beginner, competent, proficient, expert, master and visionary. These levels are widely used in professional education, which takes the development of skills as a starting point for a model of learning. Dorst and Reymen's (2004) empirical research found that Dreyfus' first three levels of expertise exist in design education:

- Novice: A novice designer will consider the objective features of a situation, and follow strict rules to deal with the problem.
- Advanced beginner: Situational aspects are important at this level, and examples are used as guidance.
- Competent: At this level a designer selects the elements in a situation that are relevant, and develops a plan to achieve their goals.

Thus, similarity can be found between Ho (2001), Kavakli and Gero (2002), Cross (2004) and Dorst and Reymen's (2004) research on the development of a designer. Initially, design students learn explicit knowledge and follow set rules to understand the problem. Then, a designer develops

their own problem-solving strategies to approach design problems, with subject knowledge becoming implicit in their practice.

2.5 Characteristics which Foster Visual Design Skills

This section defined two characteristics that represent a model of best practice as well as offering processes to be explored when answering the original research question: how a designer's visual knowledge and processes (visual reading and writing skills) can be fostered in a digital age.

2.5.1 First Characteristic: Enhancing an Individual's Visual Development through Reflection

Having understood the experiential and reflective educational models in Section 2.4, p.30, a design project is assumed to be a setting for students to gain visual experiences by interacting with different contexts and applying their visual skills; experiences gained may be implicit. Students are assisted to reflect on their visual experiences through dialogue with, and demonstration from educators and also their peers. This dialogue and interactions enable a process of reflection-in-action – reflecting on their knowing-in-action (Schön, 1987, p.163). After the dialogue, students may develop new ways of exploring a visual situation, reflecting on their own way of working and understanding what is preventing them from learning (*see* Figure 1.1, p.3). As the students become more advanced at interacting with different design problems, they are more able to reflect-in-action without support. Hence, students' visual development is informally and implicitly fostered on an individual level, and is seen as a very personal journey of experience and reflection. However, having explored Schön's description of design learning in Section 2.4, two factors require further exploration in terms of considering how a student's visual knowledge and processes (visual reading and writing skills) can be fostered in a digital era. Currently, the way a student develops the ability to reflect-in-action is unclear, as it is difficult to understand how students become aware of their barriers and improve their own visual knowledge and processes (visual reading and writing skills). Both of these aspects are important if students are to articulate their visual knowledge and processes (visual reading and writing skills) and gain feedback in order to progress.

This characteristic builds on the situation that a design project provides, to enhance individual student's development by encouraging them to reflect and articulate their visual knowledge and processes (visual reading and writing skills). This is important, as visual knowledge and processes are enhanced or developed as digital software and practices evolve, students will need to take more control of their visual development, and be less led by the educator. Hence, by implementing this characteristic students will feel more able to ask for feedback from tutors to direct and develop their visual knowledge and processes (visual reading and writing skills).

Individual development can be enhanced through methods of self-assessment⁷; one potential strategy to aid students' reflection on and articulation of visual knowledge and processes (visual reading and writing skills) is through the use of reflective journals. Webster (2001) and MacColl *et al.* (2005) describe examples of reflective journals that were introduced into design pedagogy. Webster first raised awareness of reflection using Brockbank and McGill's (1998) model of reflective learning before introducing the Design Diary, which allowed students to understand the value of self-reflection in their design practice and appreciate how they had personally developed. Webster (2001, p.13) contended that his approach helped the strong students to challenge their practice and understand it, offering the less able a structure that helped them to demystify the design process. In Webster's (2001, p.14) case the Design Diary supported students in combining a number of modes of expression to record and reflect on their actions. MacColl *et al.*, (2005) introduced students to reflective practice over the course of their first year of study, allowing them to build up their practice through the use of a blog.

2.5.2 Second Characteristic: Enhanced Visual Skills

In Section 2.2 it was argued that computers are changing designers' working practices, and therefore what it means to be visually literate in design is shifting. According to Meggs (1998) "university design education programs became important centers[sic] for redefining graphic design through theoretical discourse and experimentation with computer technology" (p.456). Also mentioned in Section 2.2 was Schiller (1987, cited in Petterson, 2002, p.77) who argued that each visual medium has its own characteristics, producing different visual literacies and requiring different skills. Therefore this characteristic explores which specific visual skills design students require to engage in a screen-based environment and considers how best they can be fostered. This characteristic builds on the experiential educational model described in Section 2.4, to enhance students' visual skills and their ability to engage with the outside world. To explore which enhanced visual skills design students require would involve developing a method to externalise which are needed to engage in a screen-based environment and what measures are required to improve these skills.

⁷ Black (1998, pp.129-132) examines a series of cases where self-assessment was used. One example used self-assessment in the arts, with the aim of developing students' artistic appreciation where the tutor's role was to develop a student's reflective skills to master and assess their own work. Based on analysis of this series of case studies he contends that "in order to become effective as learners, pupils need to progress in their knowledge of themselves as thinkers and learners, in their understanding of particular tasks, and in their strategic knowledge of how to go about the improvement of their own learning (Alexander, *et al.*, 1991). It is hard to see how pupils can progress in these dimensions unless they are helped to develop self-assessment. Thus, if effective learning requires that pupils become increasingly involved in taking responsibility for their own learning, then they must also be involved in their own assessment" (p.131).

2.6 Conclusions

The initial goal of this research project is to understand how a designer's visual knowledge and processes (visual reading and writing skills) can be fostered in a digital era. This literature review has set a theoretical base from which to explore the original research question – through the descriptions of visual language and literacy acquisition, the importance of visual abilities in a designer's practice and fostering a designer's visual knowledge and processes (visual reading and writing skills) in design education. These descriptions have revealed the following key points:

- In Section 2.2, p.20 it was implied there was a basic visual comprehension, which a child uses to develop an oral and written ability, which is learnt informally through social activities. However there is a more sophisticated knowledge required to produce visual images, which has to be formally learnt. This led to the notion that in a design context, educators foster students' visual knowledge through biological processes (visual reading and writing skills) to enable them to read, write and think with images in any context. This understanding of visual language and literacy acquisition draws largely on a psycholinguistic perspective; however as the research progressed a sociolinguistic perspective played a greater part in the understanding of a designer's visual development. This section importantly highlighted that visual reading and writing skills have been enhanced and require a designer to engage in different visual languages in light of technological and digital developments, widening what it means to be visually literate.
- In Section 2.3, p.23 it was argued visual abilities are fundamental to and play a broad role in a designer's practice, from understanding the world around them, to being critical of themselves and others.
- Given the importance of visual abilities in a designer's practice, there is a lack of shared knowledge about how they are continually fostered in design education. In Section 2.4, p.27 it was gathered from exploring the experiential and reflective educational models that students' visual knowledge and processes (visual reading and writing skills) are informally and, to some extent, implicitly fostered on an individual basis, through the development of their ability to reflect-in-action.

These descriptions and realisations led to an initial model of best practice in the form of two characteristics. The two characteristics identified in this literature review build on the design studio educational model, to provide an initial understanding of how visual knowledge and processes (visual reading and writing skills) can be fostered in a digital era:

- Enhancing an individual's visual development through reflection: The first characteristic suggested methods of self-assessment would be effective at fostering a student to reflect on and articulate their visual knowledge and processes (visual reading and writing skills).

This would enable them to take more control of their visual development as digital software and practices evolve, as individual's would be more able to communicate their visual knowledge and processes (visual reading and writing skills); resulting in more effective feedback. Theoretically, as the use of self-assessment progresses, the ability to reflect-in-action would increase; consequently less input from the design educator would be required. Therefore this characteristic has the potential of enhancing individual visual development for the short and long term.

- Enhanced visual skill: This characteristic explores which visual skills are required to work in a screen-based medium and then determines effective approaches to foster such skills. In essence, this would inform designers' visual knowledge and processes (visual reading and writing skills), as design educators would be equipped with the knowledge and methods to foster effective engagement in a screen-based medium.

Establishing such characteristics contributes to the identification of more specific directions in which design educators can develop effective visual pedagogy, in a digital era. The next chapter presents the methodology used to explore these identified characteristics. The methodology outlined led to the preliminary research that prompted a shift in research question and design.

Chapter Three: Methodology

3.1 Introduction

The methodology used to explore the original research focus – designers' digital visual skills, is outlined in this chapter through the presentation of the research philosophy and research strategies, an overview of educational and pedagogical research, and the preliminary research design.

3.2 Research Philosophy and Strategy

A research philosophy “relates to the development of knowledge and the nature of that knowledge” (Saunders, *et al.*, 2009, p.107) and can be considered from two main aspects – ontology and epistemology (Müller, 2003, p.54; Saunders, *et al.*, 2009, p.109). Ontology, the study of reality and being, relates to the acknowledged assumptions about a particular subject. In this case, there is a universal knowledge of visual language and processes of using this knowledge that an individual can learn through cognitive means. Epistemology, the study of knowledge, refers to the suitable pool of knowledge in the area of study, and the perspectives underpinning the ontology. In this research, the literature review on visual language and literacy acquisition has predominantly drawn on a psycholinguistic perspective (*see* Section 2.2, p.22). This perspective has led visual literacy scholars to be concerned with the cognitive development of universal visual language, literacy and abilities to enable individuals to read, write and think with images in any context.

The ontology in this research was initially objective and external, rather than subjective and socially constructed. This led to the adoption of a positivist stance, which is often associated with a researcher’s discovery of facts, “looking for causality and fundamental laws”, and “reduc[ing] phenomena to simplest elements”, preferring methods that produce concepts “so that they can be measured [and] taking large samples” (Müller, 2003, p.55). In essence, “the natural and human sciences share common logical and methodological principles, dealing with facts and not with values” (Gray, 2004, p.18). Based on this research philosophy, the initial research strategy to investigate designers’ visual development in the digital era involved two tactics:

- First tactic: Observe participants’ construction of visual knowledge through biological processes (visual reading and writing skills).
- Second tactic: Employ an empirical approach to observe visual literacy skills in isolation, independent of context and avoiding cultural influences.

As little research has been undertaken on how visual knowledge and processes (visual reading and writing skills) are acquired in design, an objective research strategy was determined to be appropriate for the initial part of this research. However, in order that the knowledge constructed from this research programme be useful for design educators and design students, it is necessary to interact with the situation to develop effective approaches that contribute to the fostering of students’ visual knowledge and processes (visual reading and writing skills) in a digital era. This adoption of a pragmatist stance would argue “it is more appropriate for the researcher in a particular study to think of the philosophy adopted as a continuum rather than opposite positions” (Tashakkori and Teddlie, 1998 cited in Saunders, *et al.*, 2009, p.109). This led to the adoption of a research strategy at the final stages that was subjective and focused on interpretive social science, involving the following two tactics:

- First tactic: Explore participants' acquisition of visual knowledge through biological processes (visual reading and writing skills).
- Second tactic: Employ an action research approach in order to observe visual literacy skills *in situ*.

Educational research presented in the next section influenced the need for an additional research strategy to include action research – however, both strategies described above were based on the same ontology (there is a universal knowledge of visual language and processes of using this knowledge that an individual can learn through cognitive means) and epistemology (a psycholinguistic perspective).

3.3 An Overview of Educational and Pedagogical Research

This section reviews the nature of educational and pedagogical research, which provided a foundation for the initial research design.

3.3.1 Educational Research

From the literature, two traditional avenues of educational research can be identified: research *into* education, and research *for* education. In terms of research *into* education, Travers (1978, cited in Verma and Mallick, 1999, p.32) argued that the goal of educational research was to determine laws of behaviour that could be used to make predictions about an educational setting. Travers defined it as “an activity directed toward the development of an organized body of scientific knowledge about the events with which educators are concerned” (Travers, 1978, cited in Verma and Mallick, 1999, p.32). Travers view of educational research implies that a researcher would test a hypothesis, address a question, and develop theory and methods to discover facts through inquiry *into* education. This would indicate that the development of a hypothesis requires a researcher to immerse themselves in theory that, once absorbed, can be put into practice. The findings are then evaluated and the hypothesis refined.

Anderson (1998) presented an alternative view of educational research:

“Research in education is a disciplined attempt to address questions or solve problems through the collection and analysis of primary data for the purpose of description, explanation, generalization and prediction.” (p.6)

Anderson’s (1998, p.7) definition refers to problem-solving activities – testing a hypothesis or explaining phenomena – and the development of theory *for* education. A further step can be seen in educational research that uses the notion of problem solving to inform practical activities in an educational setting. This in turn relates to an action research approach, which deals more with social change, requiring not only the description and understanding of a situation, but its transformation. In the words of Reason and Bradbury (2006) “action research is a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview” (p.1). It is a generic term and one that is used to describe a range of activities and methods (Gray, 2004, p.374). It could more accurately be called an approach to research, not a specific methodology. As Kemmis (1988) emphasises:

“action research should not be seen as a recipe or technique for bringing about democracy, but as an embodiment of democratic principles in research, allowing participants to influence, if not determine, the conditions of their own lives and work, and collaboratively to develop critiques of social conditions which sustain dependence, inequality, or exploitation in any research enterprise in particular, or in social life in general.” (p.43)

McKernan (1996, p.15) outlined three different modes of action research: the scientific, the practical-deliberative and the critical-emancipatory. The scientific mode uses a scientific approach to solve problems, collaborating with the people who experience the issues most directly. This mode of action research is carried out by outside researchers, who have access to the setting for the research environment (McKernan, 1991, p.10). A scientific approach uses Lewin's (1948) action research model: plan, act, observe and reflect.

Adopting the practical-deliberative research mode, the practitioner understands their practice and solves immediate problems (McKernan, 1991, p.20), in making individual changes to the situation. However such changes can prove short-lived, as if the practitioner leaves the system, or an influx of new people join the group, knowledge can become dissipated (Holter and Barcott, 1993, p.301).

Compared with these first two modes of action research, the critical-emancipatory model is more action oriented, as it is concerned with providing practitioners with the necessary skills to make sound decisions. This is often a politically empowering process for practitioners, freeing them to make decisions and judgements regarding the educational process. Kemmis and McTaggart (1982, cited in McKernan, 1996, p.26) exemplified this with their simple planning, acting, observing, and reflecting, echoing Lewin's (1948) model, with the reflection leading to a revision of the original plan, causing the spiral to begin again. McNiff's (1988, pp.44-5) action research model allows flexibility to explore different problems at the same time, which is more relevant to an educational setting. This model describes a spiral of plan, do, observe and reflect, and explains the need for the main "spirals to develop spin-off spirals" (pp.43-4) as shown in Figure 3.1. This model was a development from two previous approaches to action research identified by Lewin (1948, p.207) and Kemmis and McTaggart (1982, p.7), as McNiff (1988, p.28) had observed weaknesses in both models; in Lewin's model there was no movement from the original notions or research question, and both models were too rigid and confusing to be able to deal with a novel situation. However, McNiff (1988, p.45) acknowledges that in her model that a researcher may lose sight of the original problem; thus it is important, when using this model that a researcher is aware of the decisions that they have made. This highlights another important feature of action research: reflective practice.

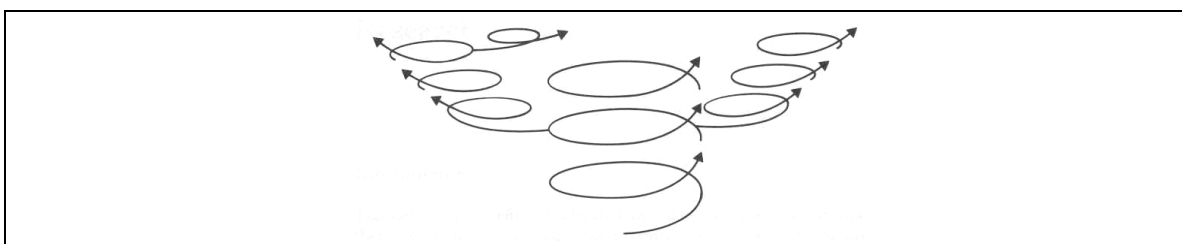


Figure 3.1: McNiff's (1988, p.28) action research model

Reflective practice relates to Schön's process of reflection-in-action (1987, p.27), which describes the scenario of a designer carrying out a routine procedure that unexpectedly fails, leading them to reflect on the situation in action to solve the problem. Schön identified, indirectly, that reflection occurring on reflection-in-action might shape future actions (Schön, 1987, p.31). Reflection-on-practice is required as knowledge used in a naturally-occurring procedure can often be tacit (such as the sensations of the tools in the hand) and therefore implicit in action, which Schön (1987, pp.22-6) has termed knowing-in-action. This notion of how a professional practitioner works is a basis for researchers to deal with problems in practice (Scott and Usher, 1996, p.106). However, to permit permanent changes to occur, a researcher must develop a level of reflexivity. Reflexivity is a term that describes actions beyond the reflected, questioning the underlying assumptions of the situation and the acts of a researcher in considering consequence (Nightingale and Cromby, 1999, p.228). In essence, a researcher must bring to a situation both objectivity and consideration of the values and beliefs they have to offer, as well as an understanding of the participants. Schön (1987, pp.114-6) describes a ladder of reflection for a reflective practitioner that begins at the designing stage, as set out below:

4. Reflection on reflection on description of designing
3. Reflection on description of designing
2. Description of designing
1. Designing

The first rung, designing, is the process of reflection-in-action. On the next rung is reflection-on-action, description in the form of recognising, criticising and/or appreciating the work. The third rung more often takes the form of a dialogue with a coach or peer, with the intention of reflecting on the meaning of design. On the fourth and final rung there is an opportunity for the practitioner to reflect on the dialogue, which may lead to trying out a new strategy or approach. All the rungs of the ladder may not be required in order for learning and change to occur (Schön, 1987, p.116). The ladder is applied when a practitioner is having difficulty with a problem, allowing them to move up and down the ladder freely. However, Schön's (1987) model has been criticised for its vagueness and ambiguity, and therefore may be of limited practical use. Dorst (1997) summarises the situation as follows: "Schön developed a 'primer' for a new theory of design, as such the basic theory of reflective practice is rather sketchy; the key concepts are vague and its uses are not totally clear" (Dorst, 1997, p.73, cited in Ridder, 2007, p.6).

Brockbank and McGill (1998, p.81) have since expanded on the concepts expressed in Schön's work (knowing-in-action, reflection-in-action and reflection-on-action) to present a model for reflective learning. This model focuses on facilitating the learner to enter reflection-on-action, with more focus on the learner than the design process. This is important as it encourages explicit

recognition and the use of reflective dialogue as a means for learners to reflect on their practice, as well as supporting their own learning about learning. Brockbank and McGill (1998) provide a practical model of reflective dimensions; similar to that of Schön, but with more emphasis on recognising reflection as an interactive process that involves others. Although viewing solo reflection as necessary, they consider it insufficient to alter the learner's understanding of their own learning. Brockbank and McGill (1998) propose the "notion of dimension in order to mirror the ideas of permeability across dimensions and to prevent the demotion of experimenting against reflection" (p.79). They believe working with experts to be pivotal, especially when helping learners to engage in critical reflection on their work in progress, (referred to by Schön as reflection-in/on-action) and directing them towards further research and exploration. To achieve this, Brockbank and McGill (1998, p.81) offer five dimensions of reflection:

- Action (knowing-in-action): This is an intuitive and tacit procedure, derived from previously acquired knowledge, skills, and competencies.
- Reflection-in-action: Linked to dimension 1, this requires the observation of feelings and thinking during action.
- Reflection on (dimensions 1 and 2) reflection-in-action: In this dimension the learner returns to the experience, evaluates particular feelings about their project, and is encouraged to reflect with assistance in the explicit communication of ideas, preparing them for the discussion that occurs in dimension 4.
- Reflection on (dimension 3) reflection on reflection-in-action: The previous reflection is necessary and desirable, but usually not sufficient. Only by re-evaluating the experience with others can learners see what is missing in the way they are learning, leading to engagement in critical reflective conversation, which does not happen in dimension 3. Without this social interaction and the formation of a relationship with peers and teachers, critical reflection may not occur, resulting in difficulties moving forward. This dimension requires trust in the teacher and their ability to question more deeply to reveal any gaps in learning.
- Reflection on (dimension 4) reflection on (dimension 3) reflection on reflection-in-action: The learner begins to realise and take on board the feedback from previous stages. This dialogue enables them to understand how they may become more able and willing to change their future practice, influencing their reflection-in-action.

Brockbank, *et al.*, (2002) further develop the idea of reflective learning, by expanding on Argyris and Schön's (1978) single, double and triple-loop forms of learning. Single-loop learning achieves improvement on a day-to-day basis, reflecting on the task, yet, "leaves underlying values and ways of seeing things unchanged" (p.10). Double-loop learning takes place when assumptions about ways of seeing and underlying values are changed (Brockbank, *et al.*, 2002, p.11). This requires

the questioning of what is usually taken for granted, in order to shift how we view the world⁸. Emphasis is placed on reflection-with-others, which has the potential to lead to double-loop learning, as it questions assumptions that may otherwise remain internalised. This may enable the learner to traverse into the double-loop learning mode, referred to as a paradigm shift. Emergent knowing follows this, which leads to new understanding as illustrated in Figure 3.2. Emergent knowledge and new understanding draw on outside knowledge. A return to the single-loop occurs where appropriate. The double-loop learning process occurs when reassessing the whole project or programme with a view to major change (Brockbank, *et al.*, 2002, p.12).

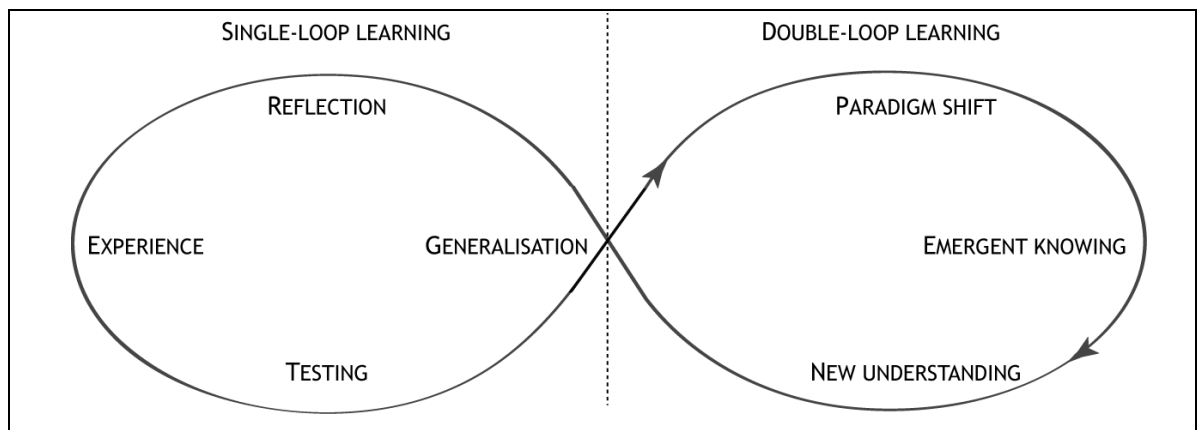


Figure 3.2: Brockbank, *et al.*,’s (2002, p.10) single and double-loop learning

Argyris and Schön (1978, p.19) believe not only in reflecting on insights gained from single and double-loop learning, but using these insights to generate knowledge that can lead to an enduring understanding of what to change. Brockbank *et al.*, (2002, p.14) frame this understanding as triple-loop learning, where the learner reflects upon the single and double-loop learning and engages in learning how to learn. This is echoed by Rosinski (2003) who stated that in “triple-loop learning or transformation, the feedback might lead to a change in the context, in how our individual identities are constructed or in the culture of the organization” (p.248). Engaging in the single, double and triple-loops of learning can help the practitioner to deal with the subjective nature of action research. These forms of learning provide a way to show how permanent theory and learning evolve through a reflective process, and their use is important, as action research has been criticised for a lack of rigour. According to Straub (1991, cited in Baskerville and Wood-Harper, 1996) “rigor [sic] relates to fitting the research methods to the problem in order to produce valid scientific explanations and the use of multiple methods to produce valid research constructs” (p.241). Hitchcock and Hughes (1995, p.30) argue from a positivist viewpoint that the interpretive nature of action research spirals calls into question the rigour of the enquiry, research and researcher. They contend that a potential threat to validity is the lack of impartiality on the part of the action

⁸ Brockbank, *et al.*, (2002, p.11) used the word world to denote the realities of an individual, group or organisation.

researcher, which shapes the nature of engagement in a situation and how its story is told. Therefore, they argue, it must be acknowledged that action research is a context specific-research method and, as a result, generalisations should be avoided. However Coghlan and Brannick (2005) suggest that:

“... all research demands rigour, action research has to demonstrate its rigour more particularly. This is because in action research you typically start out with a fuzzy question, are fuzzy about your methodology in the initial stages and have fuzzy answers in the early stages.” (pp.126-7)

They further contend that, as a researcher moves through their action research spirals, the view of the research problem becomes clearer; to demonstrate rigour the procedures used to achieve this have to be evidenced. Coghlan and Brannick (2005, p.28) emphasise that rigour in action research should be achieved in this manner, through demonstrating how data is generated, gathered, explored and evaluated and how events are questioned and interpreted through multiple action research cycles. Triangulation should be employed to ensure that the quality of the data gathered is without bias (Koshy, 2005, p.30). Coghlan and Brannick (2005, p.27) also contend that action research should not be judged by positivist criteria, but on its own principles.

The traditional notion of educational research has been to observe and develop theories about education (research *into* education), or to solve theoretical and practical problems (research *for* education). Based on this review, an action research approach (research *for* education) was deemed the most suitable strategy upon which to base the preliminary research design, as it offered a means to engage with practice and theory.

3.3.2 Pedagogy Research

This section provides an additional basis on which to plan the preliminary research design as it describes three areas of pedagogical research: the notion, the use, and the development and validation of pedagogy.

The traditional notion of pedagogy as “the art and science of teaching” (Knowles, *et al.*, 1998, pp.61-2) implies that teachers take full responsibility for what and how students learn. Pedagogy developed from two Greek words: paidos, meaning child and agogos, meaning – ‘leader of’, translating to “the art and science of teaching children” (Knowles, *et al.*, 1998, pp.61-2).

Cotemporary pedagogies that have been associated with the word design include Learning by Design (Cope and Kalantzis, 2005), Understanding by Design (Wiggins and McTighe, 2005) and Pedagogy as Design (Jewett, 2006, p.138). All of these approaches view educators as designers, who design and develop appropriate teaching-learning approaches for their own educational

context. That is, these pedagogies employ the concept of design in order to develop educators' understanding of how they can design methods to enhance another individual's approach to learning, through describing the relationship between teaching styles, classroom activity and learning processes.

Therefore, the three pedagogies (described below) prompt educators to re-evaluate their own teaching practice for the purpose of developing their approach to designing individualised learning. Such an approach to pedagogy was highly relevant to this study, as the literature review argued visual development is a personal and individual journey fostered through experiential and reflective educational models (*see* Section 2.4, p.27).

Cope and Kalantzis (2005) suggest that “the Learning by Design approach to pedagogy aims to make teachers more mindful and conscious of what pedagogical processes they are employing, both to ensure it fits the learning goal and to be inclusive of diverse learners who come to know things in different ways” (p.69). There is also the Multi-literacies pedagogy that formed the foundation for Learning by Design (Cope and Kalantzis, 2005). Cope and Kalantzis (2000, p.7) consider design a key concept, as although we all have inherent patterns and conventions, we are individual practitioners and designers of meaning. They contend that design is free of grammar; and is a rich concept from which to create a language that can be used ambiguously to produce a variety of products and processes (Cope and Kalantzis, 2000, p.20). The Learning by Design pedagogy provides educators with a schema, not a dictatorial approach: it does not tell the educator what to do; rather it helps them to reflect on their current practice. It views educators as designers whose application of the pedagogy allows them to analyse their current practice and consider improvements with the goal of developing students as independent learners. In essence, “the notion of design connects powerfully to the sort of creative intelligence the best practitioners need in order to be able, continually, to redesign their activities in the very act of practice” (p.19).

Wiggins and McTighe present the Understanding by Design approach (2005); they do not view this as a new paradigm but a different way of thinking about incorporating understanding into the learning experience. It offers “a way to redesign any curriculum to make the students” (p.7) understanding (and desired results generally) more likely, by using a set of design standards and methods. This is not an educational philosophy, nor does it need a specific pedagogical approach; it merely provides help in dealing with any educational design problem where an understanding of practice is of prime importance (p.8). This approach is based on facilitating learning about how teachers approach their design of teaching materials, encouraging them to question curricula, develop focus and suggest a way of thinking that prompts the creation of strategies to promote students' understanding.

The third pedagogical approach presented by Jewitt (2006, p.138), Pedagogy as Design, outlines elements and principles used in a design to achieve the realisation of a particular pedagogy. In her view, the educator's pedagogy is affected by their individual knowledge and social forces (whether institutional or national), and is governed by how these elements interrelate across time and space to form the session. Pedagogy as Design views the educator as central to this process in envisioning their audience, adapting their practice and seeing "pedagogy as a designed set of practices and social relations" (p.139).

When understanding the development and validation of pedagogy, it is first necessary to understand the role of those involved in its development. Mortimore (1999, pp.3-17) provided a comprehensive literature review of pedagogy from three viewpoints – those of the researcher, the educator and the policy maker:

- A researcher's role involves understanding the relationship between the teaching style, context and learner.
- Educators focus on the teaching environment, teaching style, concerns about time and its impact on their teaching.
- Policy makers focus on teaching style; their view is to simplify pedagogy to enable teachers to implement it, more effectively perhaps in the form of set-piece teaching that can be universally applied.

The researcher, educator and policy maker all have a role to play in pedagogy. Mortimore (1999, p.14) summarised the relationship between these three roles, with the researcher's role being highly complex and extending across the situation through long-term direct action. The educator focuses on learning, and short-term immediate action, while the policy maker's role is described as having low complexity for all situations, again employing short-term but indirect action.

Referring back to the three examples of pedagogy, both Understanding by Design (Wiggins and McTighe, 2005) and Learning by Design (Cope and Kalantzis, 2005) have been developed and validated in different ways. Understanding by Design was developed by two international experts of curricula, assessment, and teaching for understanding (Brown and Wiggins, 2004, p.13). Having worked together over a period of 10 years, Wiggins and McTighe had "a shared vision for a framework that could synthesize the best of what we know about promoting high levels of achievement for all students" (Brown and Wiggins, 2004, p.14). They produced a range of guides to aid in teaching practice (Wiggins and McTighe, 1998; McTighe and Wiggins, 2004). Understanding by Design was validated through a questionnaire to study participants' perceptions of pedagogy; considering its strengths, challenges, pitfalls and potential future applications both in individual learning organizations and in the field of general education.

Cope and Kalantzis's (2005) Learning by Design pedagogy evolved differently, partly through the development of key theories during a series of meetings with influential academics, but mainly through case studies of teachers implementing the pedagogy in their teaching practice. Thus, validation occurred through a "dialogue, of working closely with teachers to develop new practices" (Cope and Kalantzis, 2005, p.vi). Mortimore (1999, p.13) suggests that the style of relationship between the researcher and educator should be productive, and warns against the two classic misunderstandings of the researcher being too theory-based, and the educator too instructed, rather than the relationship being a close collaboration with recognised expertise. Mortimore suggests that the researcher could act as a critical friend, enabling the educator to "enhance their own knowledge generating capacities" (p.13) and stressing the importance of a "profitable exchange of views" (p.13).

This section led to the conclusion (that was factored into the initial research design) that the research output should inform pedagogical development by:

- Positioning design educators as designers of individual learning.
- Drawing on design educators' experience and knowledge of both their teaching and the learning environment.
- Enabling design educators to question and reflect on current teaching practices in order to foster a designer's visual knowledge and processes (visual reading and writing skills) in a digital era.

3.4 Preliminary Research Design

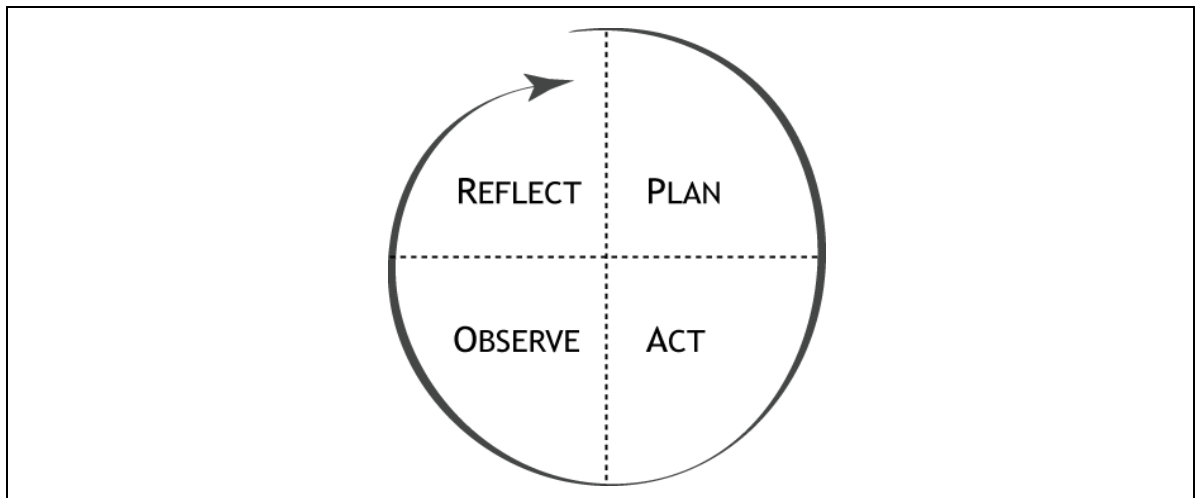


Figure 3.3: The research cycle adapted from McNiff's (1988) action research model

The preliminary research design⁹ consisted of four research cycles (RCs). Each RC had three main stages adapted from McNiff's (1988) action research model – plan, act, observe and reflect (*see* Figure 3.3):

- The initial plan outlines each RC's philosophical stance. The intention was to revisit the initial plans and select more appropriate research procedures as knowledge of the original research phenomena developed during each RC.
- The act stage describes what happened when the revised plan was put into practice, and provides insights into the original research focus, through actively observing or reflecting in and on the research context.
- The observe stage interprets the findings of the act stage through analysis and triangulation of the data collected.
- The reflect stage leads to an increasing insight into the original research focus. At this point theory and practice are bridged, as insights gained from reflecting on the plan, act and observe activities lead to engagement in new areas of theory.

The research philosophy and strategies outlined in Section 3.1 informed the selection and order of three RCs. A positivist stance that recognises the value of objectivity and facts was implemented at the outset to gain an overview of designers' visual development in a digital era in RCs One and Two. A shift to an interpretive social science stance was required in RC Three in order to inform pedagogical development required. This stance recognises the value of interacting with the

⁹ Research design is defined as a "plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems" (Kerlinger, 1986, p.279 cited in Kumar, 2005, p.84), where the strategy or tactics depend on the type of study and research question being answered (Manstead and Semin, 1988, cited in Robson, 2002, p.80).

research situation, gaining opinions, views, multiple perspectives and stories. The next section presents a brief overview of the initial plan for each RC, to provide the reader with an insight into the steps taken to answer the original research question.

3.4.1 Research Cycle One: Literature Review and Characteristics Identification

As well as being a prerequisite component of the research program, the literature review was critical to the development of the research philosophy and strategies, with particular attention paid to knowledge gaps relating to the designer's visual development. Therefore RC One outlined the background for this research study and identified characteristics to be explored during the course of the research in relation to fostering designer's visual knowledge and processes (visual reading and writing skills) in a digital era.

3.4.2 Research Cycle Two: Visual Experiment

The first identified characteristic in Section 2.5.1, p.32 – enhancing an individual's visual development through reflection – is not dealt with in this cycle, as an educational setting was required in order to explore it fully. Instead, this cycle explores the second identified characteristic in Section 2.5.2, p.33 – enhanced visual skill – to discover what type of enhanced visual knowledge and skills students require when working in a screen-based environment. At a fundamental level, these questions could be explored by comparing how designers use visual literacy skills in the digital and print domains, to understand whether their skills are domain-specific. Taking a positivist stance, an empirical visual experiment was developed to explore whether working within a digital domain requires domain-specific visual literacy skills. The intent was to reflect on this cycle and reframes the second characteristic identified in the literature review.

3.4.3 Research Cycle Three: Action Research

Using an action research approach, the intent of this cycle was to develop tools that foster students' visual knowledge and processes (visual reading and writing skills) in a digital era. The intent was to engage in the following three levels of reflective inquiry influenced by Brockbank *et al.*, 's (2002) model of reflective learning (*see* Section 3.3.1):

1. First Level of Reflective Inquiry: What happened?. This level draws on the notion of single-loop learning, where a researcher engages, on a daily basis, in the process of reflecting in and on the tasks at hand, in order to inform improvement. For this reason, this level of inquiry was concerned with reflecting on the development tools to assist design students' visual development in a digital era. The development was guided by the characteristics identified in the previous RCs.

2. **Second Level of Reflective Inquiry: Data Analysis and Triangulation.** This level draws on the notion of double-loop learning. From reviewing the literature on the three loops of learning (*see* Section 3.3.1) it is clear that double-loop learning does not immediately occur; it requires a depth of engagement with the situation. This level of inquiry therefore involves analysis and triangulation of data gathered from the first level to develop the necessary depth of engagement required to facilitate double-loop learning to occur and generate a new understanding of the situation.
3. **Third Level of Reflective Inquiry: Reframing the Characteristics.** This level of inquiry reflects on what has been learnt through the previous levels. Using this knowledge, the characteristics presented in RCs One and Two are refined, achieving triple-loop learning. In addition, this level of inquiry involves drawing on theoretical knowledge, as and when it is needed, to explain the situation. Ultimately, this level leads to an enduring understanding of how a designer's visual knowledge and processes (visual reading and writing skills) can be supported and improved.

3.5 Summary

The research philosophy, strategies and design have been set out above. However it should be noted that the findings of RC Two presented in the next chapter led to a shift in research focus, paradigms, design and strategy. This shift is presented in Chapter 5. Due to the change in direction RC Three was not carried out.

Chapter Four: Preliminary Research Into a Designer's Visual Development Through a Psycholinguistic Approach

4.1 Work Leading To Present Study

In Section 1.6, p.10 it was outlined how this body of research was initially focused on fostering designers' visual knowledge and processes (visual reading and writing skills) in a digital era. To capture this involved the development of an empirical visual experiment to explore and identify an enhanced visual literacy skill set that would be required to work in a screen-based environment. The experiment was conducted with print- and digital-based professional designers, digital-based design students, and non-designers. Digital-based students were the principle focus of this study as they are good examples of individuals currently dealing with constantly progressing technologies used to produce imagery. It was necessary not only to understand how digital-based design students used their visual literacy skills in different domains, but also how professional designers, across the design disciplines, i.e. print- or digital-based, apply those skills. To provide context, a control group drawn from non-designers was necessary in order to compare designers and design students to subjects without design training.

The participants engaged in two conjoined tests devised to assess their visual production skills; one test was in a digital format, the other print based. Descriptive analysis was used to compare these two activities. Four visual literacy skills were considered in both the digital and print domain: visual discrimination¹⁰ and visual association¹¹ measured participants' visual knowledge, and constructing meaning¹² and knowledge of visual conventions¹³ measured their visual comprehension. In the experiment, these visual reading and writing skills were observed by asking participants to apply each skill three times in each domain; either by selecting a visual component(s)¹⁴, or selecting from a range of images or different book genres, i.e. mystery, comedy and romance (*see* Figure 4.1).

¹⁰ Visual discrimination is "the ability to perceive differences between two or more visual stimuli" (Avgerinou, 2001, p.xvi).

¹¹ Visual association is "the ability to link visual images that display a unifying theme" (Avgerinou, 2001, p.xvi).

¹² Constructing meaning is "the ability to construct meaning for a given visual message on the evidence of any given visual (and perhaps verbal) information" (Avgerinou, 2001, p.xvii).

¹³ Knowledge of visual conventions is "knowledge of visual signs and symbols, and their socially agreed meaning (within the western culture)" (Avgerinou, 2001, p.xv).

¹⁴ Visual components were selected for the visual experiment by reviewing visual/design elements and principles (identified by Dondis 1973, p.39; Curtiss 1987, p.35; Thompson, 1994, pp.165-181), and considering where the digital domain may have affected the visual language when compared to a print domain. This involved mapping the internal and external factors of viewing is image on a computer screen (outlined in Thissen, 2003, p.94) to identify the visual/design elements and principles to consider which visual components effect visual perception when viewing images in a digital domain. Colour and contrast are mainly affected by screen resolution, reproduction of dark and light colour, reflective light, whereas scale is mainly affected by screen resolution, monitor size and ratio. Colour a visual element, "is the dramatic characteristic of a visual that distinguishes it from black or white" (Thompson, 1994, p.171). Visual qualities (hue, saturation and brightness) of colour are directed to sending an emotional message and colour adds realism; it depends on the use of the three qualities to how the eye is attracted to the image. Contrast, as a visual principle, has been described as "the contrast of light and dark values" (Curtiss, 1987, p.39). Scale, as a visual principle, relates to other visual elements and is involved in orientation, proportion and balance (Curtiss, 1987, p.43). Visual qualities of scale are structuring the other visual elements to enable easy reading of an image and give meaning to a space.

The images presented in Figure 4.1 show the tools utilised within the conjoined tests, images A and C were print based, whereas B and D were digital based. Participants' visual knowledge was measured by asking them to recall and recognise visual components requiring participants to select a suitable contrast for an image in both digital and print domains. The images used to examine visual discrimination were reused in the examination of visual association, as participants were again asked to select a suitable contrast to an image that were provided in a digital and print domain (*see* Figure 4.1, C and D). Images used in the experiment were similar to those shown in Figure 4.2, were also used to examine colour and scale to form the visual experiment.

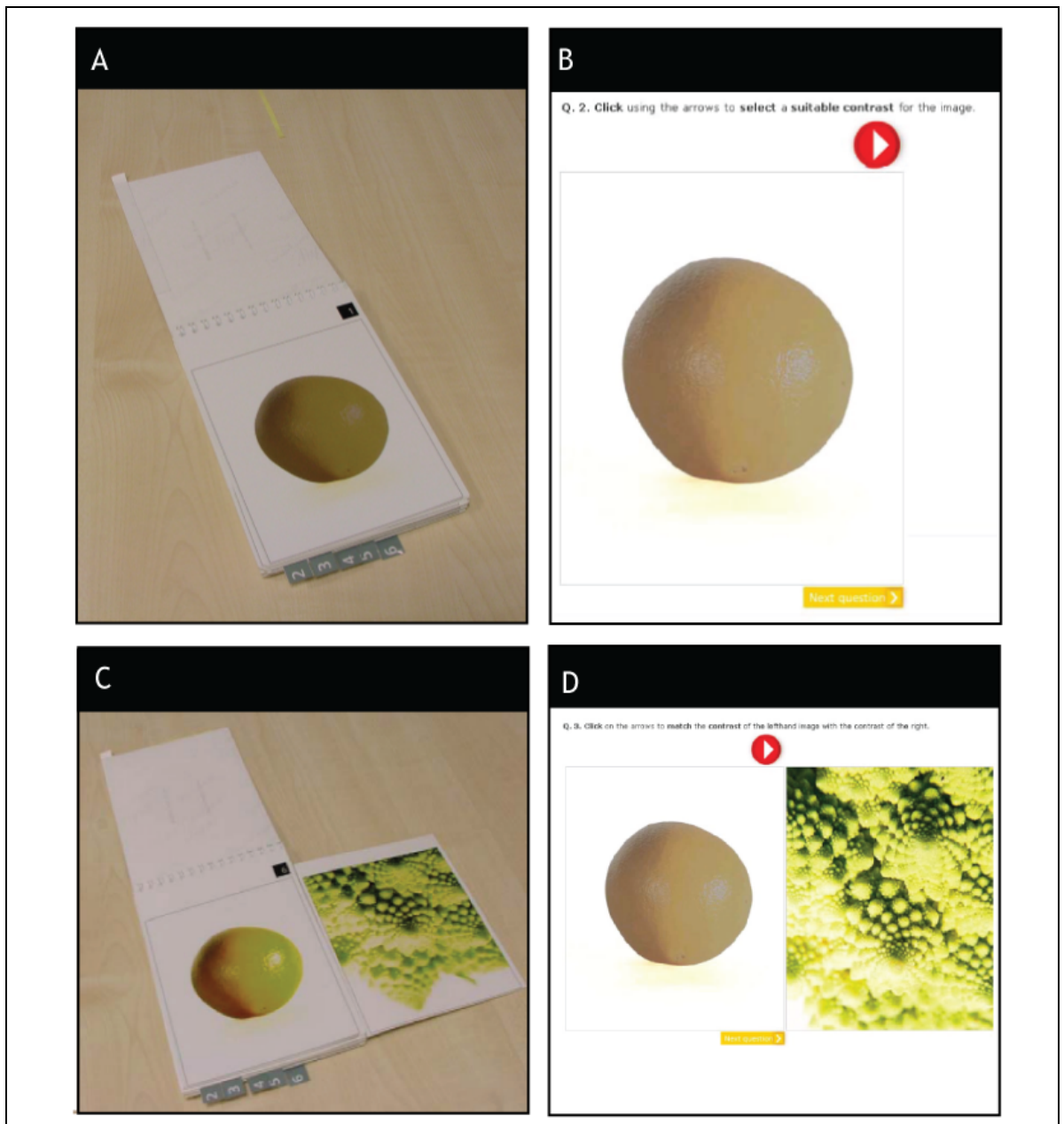


Figure 4.1: Visual knowledge experiment material. (A) Visual discrimination skill: contrast print material. (B) Visual discrimination skill: contrast digital material. (B) Visual association skill: contrast print material. (D) Visual association skill: contrast digital material.

Figure 4.2 illustrates the visual comprehension experiment material; through the use of this material, participants' were asked to demonstrate an understanding of visual meaning. The constructing meaning exercise asked participants to demonstrate this skill using three book genres: mystery, comedy and romance. This was approached by changing one visual component in a book cover for each genre, i.e. mystery-contrast, comedy-scale, and romance-colour (see Figure 4.2, A and B for examples of digital and print mystery experiment material). These three associations

between a book genre and a visual component in an image were considered the most relevant factors that influenced visual meaning (*see* Appendix 1.3, p.287).

The exercises that measured knowledge of visual conventions provided a range of book covers, where participants were asked to select the least appropriate image for each of the three genres: mystery, comedy and romance (*see* Figure 4.2, C and D for examples of digital and print experiment material). This decision was taken because the critical criterion for selecting the least appropriate image was considered less likely to invoke subjectivity in responses, than the selection of a more appropriate image. The methodology of the visual experiment is presented in Appendix 1, p.274.

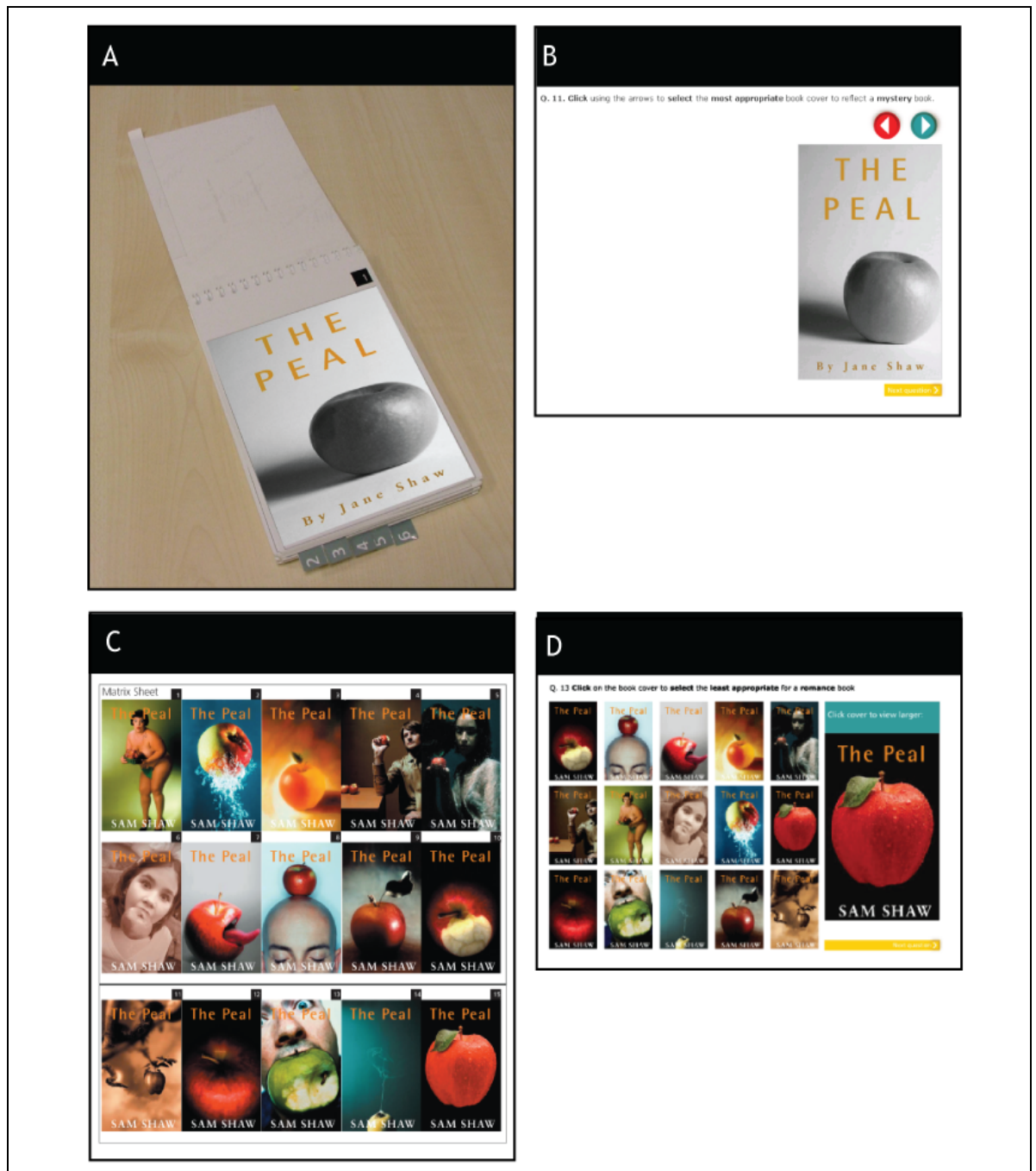


Figure 4.2: Visual comprehension experiment material. (A) Constructing meaning skill: mystery print material. (B) Constructing meaning skill: mystery digital material. (C) Knowledge of visual conventions skill: print material – Matrix Sheet. (D) Knowledge of visual conventions skill: digital material.

It is important to note, in terms of presenting an argument for this research, the preliminary research design in Section 3.4 described the visual experiment as research cycle two. This cycle explored digital visual skills, however the visual experiment results presented in Section 4.3, p.62 were inconclusive and an enhanced visual literacy skill set could not be formed. Nevertheless the results of this cycle shifted the focus of the study to informing how designers develop visually. These insightful observations resulted in questioning the assumptions held at the beginning of the research – that a designer’s visual development occurs through a psycholinguistic approach. For this reason, the visual experiment became a preliminary investigation into designers’ visual development.

This chapter presents the results of the visual experiment and describes how they were inconclusive. However, key observations from this experiment led to an understanding of how designers visually develop, leading to a discussion that questioned the ontology presented in Section 3.2, p.38. This debate laid a foundation to present the alternative approach to understanding and researching the development of designers’ visual practices, as described in Chapter 5.

4.2 Participants' Profile

The visual experiment had 198 participants of which 161 (48 design professionals, 73 design students and 40 non-designers) fitted the research criteria¹⁵. A description of the background and experience for each of the three populations sampled follows.

Population One: Print and digital based professional designers

Digital-based designers formed 37.5% of this sample while 43.8% were print-based designers. An important sub-sample was the designers who predominantly worked in a digital-based environment but were educated in a traditional print background; these designers contributed 18.8% to the sample population (*see* Table 4.1).

Table 4.1: A breakdown of designers who consider themselves to be digital-based designers, print-based designers or print to digital-based designers to allow for a comparison of the number of years in industry

Occupations	No. of participants	Percentage of designers	Minimum years in industry	Maximum years in industry	Mean years in industry
Print-based designer	21	43.8	10	36	19.67
Print to digital-based designers	9	18.8	10	28	16.22
Digital-based designers	18	37.5	3	10	5.89

Table 4.2: A combination of print-based designers and print to digital-based designers' average number of years in industry

Occupations	No. of participants	Minimum years in industry	Maximum years in industry	Mean years in industry
Print-based designers and print to digital-based designers	30	10	36	18.63

The intention was to obtain thirty designers with a digital-based and thirty with a print-based educational background. The print-based element of this population was achieved using graphic designers from a print background and print to digital-based designers with 30 participants, who

¹⁵ The research criteria stated that participants should be educated, preferably within the British educational system, and should not be colour-blind. In addition, the professional designers were required to have over three years' experience. Conversely, the non-designer sample must not contain anyone who has had design or art-based education at A-level. Participants were removed from the sample if they did not fit these research criteria.

had an average of 19 years of experience in industry (*see* Table 4.2). However, this was not obtained for the digital-based designers as there were only 18 participants who had an average of six years of experience in a digital-based industry (*see* Table 4.1) that fitted the sample criteria, were recruited. This weakened the result obtained when using the sample, as there were over thirty in the other groups, however the discrepancy may be due to digital media being the most recently introduced profession.

Population Two: Design Students

This population was drawn from first year design students in digital-based courses in four different institutions in the U.K: Interaction Design at Ravensbourne College of Communication (13.7%); Multimedia Design at De Montfort University (30.1%); New Media Design at Leeds University (24.7%); and Multimedia Design at Northumbria University (31.5%).

Population Three: Non-Designers

A key part of this study was to compare the responses of designers and design students to subjects without design training, in order to contextualise design students' skills. This sample was obtained with an even spread from three levels of educational establishments: two basic skills centres (37.5%), one school (27.5%) and two universities (35.0%).

4.3 Visual Experiment Results and Summary

This section presents the results and summary from the visual experiment. Two levels of information were derived from the findings of the visual experiment. The first, and most in-depth, level is a full descriptive analysis of the three populations' use of visual literacy skills in each domain. However such detailed analysis would distract from the main findings due to the volume of data, making conclusions problematic; therefore, a second level was considered necessary. This simplifies the findings of the visual experiment, by visually mapping the standard deviation or variation ratio results for the three populations' use of visual literacy skills in each domain. Visual mapping enabled more effective analysis of the data, as the standard deviation or variation ratio presented measures of dispersion, enabling the spread of values around the mean or mode values to be easily compared and contrasted.

Hence, in Figures 4.3-5 visual discrimination, visual association and constructing meaning skills are visually mapped to a standard deviation continuum. Each of these visual literacy skills yielded an interval measurement; therefore, the measurement of dispersion was the standard deviation (*see* Appendix 1.7, p.309). If a low standard deviation is observed in Figures 4.3-4 and the data set is clustered around the mean value, the participants' selections were more alike. Had a high standard deviation been observed this would have indicated that the data were widely spread with notably higher/lower figures than the mean; that is, the participants would have been less alike in their selections.

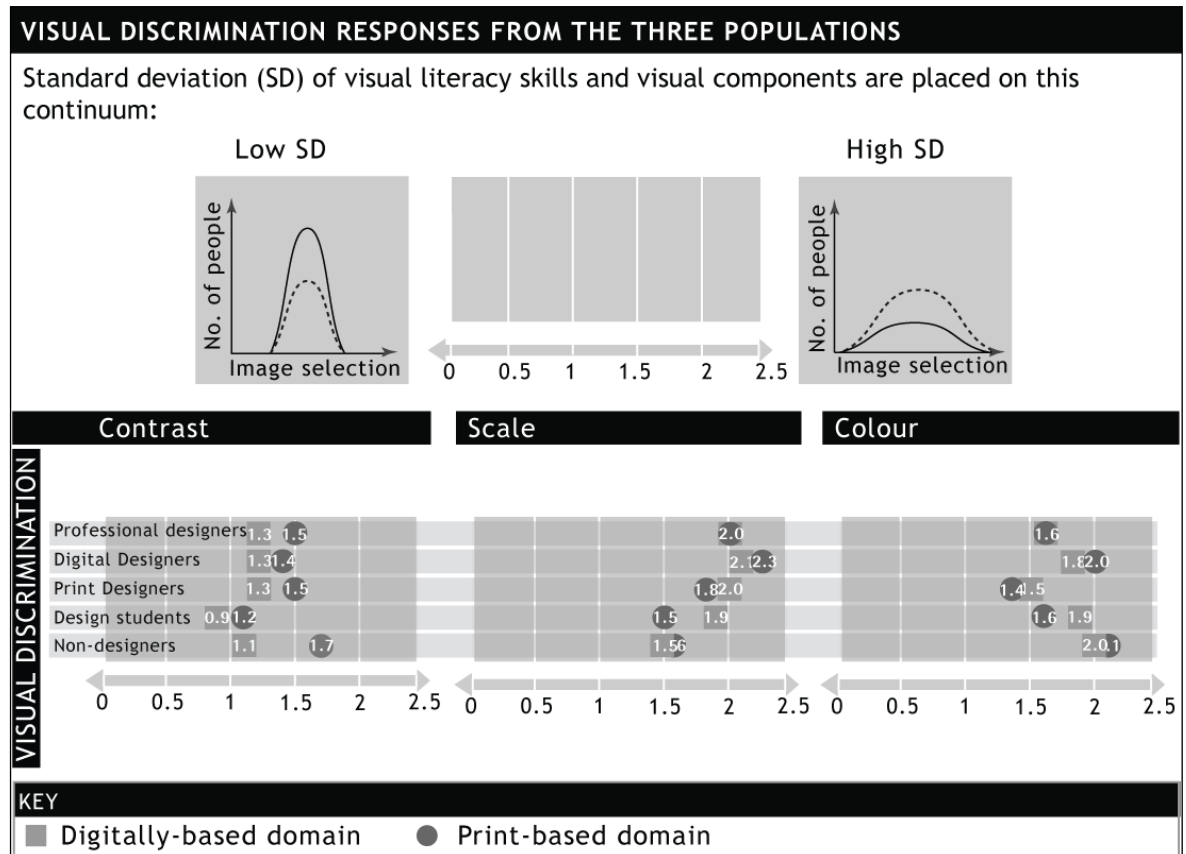


Figure 4.3: Visual discrimination skills responses from the three populations, mapped to a standard deviation continuum

Responses from knowledge of visual conventions skills yielded a nominal measurement; therefore, two statistical types are involved: central tendency, in terms of the mode value; and variation ratios¹⁶ that summarise the degree of variation in the mode value (De Vaus, 2002b, p.222). Figure 4.6, p.66 was created to visually map knowledge of visual conventions responses onto a variation ratio continuum. The variation ratio showed the percentage of cases that are not in its modal category, and thus the continuum in Figure 4.6 graduates from 0 to 1. Variation ratio values nearing 0 show that the modal value was more representative of the sample. Participants were more consistent in their selection for higher variation ratio values, nearing 1.

¹⁶ Variation ratio “shows how descriptive the MODE[sic] is of the data. It is calculated as the proportion of cases that are not in its modal category. The variation ratio ranges from 0 to 1...0 attained when all cases are in the same category. Thus zero values show that there is no dispersion on the variable. The upper bound of the variation ratio is maximal when the mode is 1, meaning that each category has a frequency of 1 so there is complete dispersion on the variable...The advantage of the variation ratio as a measure of dispersion is that it is simple to compute. Its disadvantage is that it ignores much of the information in the data because it does not take the full distribution of cases into account” (Lewis-Beck, *et al.*, 2004, p.1178).

Figure 4.3 presents the three populations’ employment of visual discrimination skills in the digital and print domains, when selecting an appropriate level of contrast, scale and colour for an image of an orange (refer to Figure 4.1 A and B, p.56 for visual discrimination skills experiment material).

Figure 4.4 presents the three populations’ employment of visual association skills in the digital and print domains, when participants were asked to alter the contrast, scale and colour of an image of an orange in order to match a neighbouring fruit image (refer to Figure 4.1 C and D, p.56 for visual association skills experiment material).

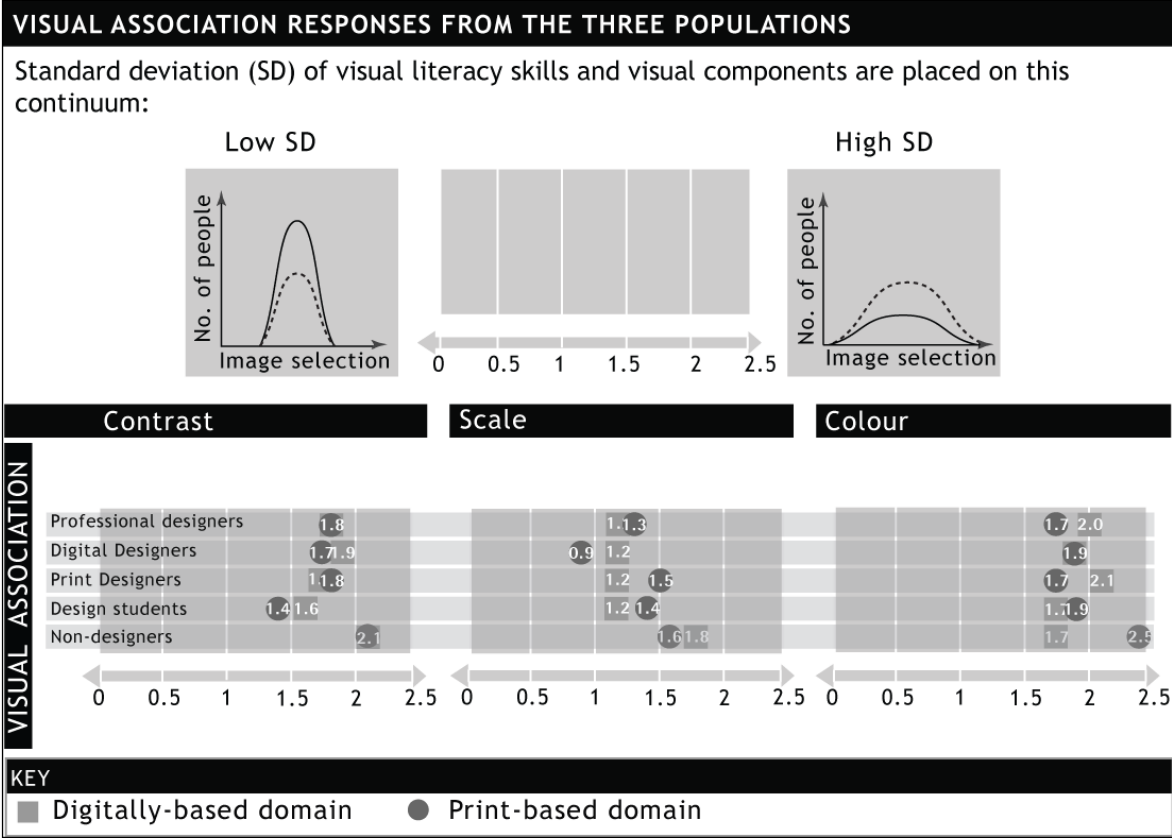


Figure 4.4: Visual association skills responses from the three populations, mapped to a standard deviation continuum

Figure 4.5 presents the three populations’ employment of constructing meaning skills in the digital and print domains, when participants were asked to select the appropriate levels of contrast, scale and colour vibrancy for a given apple image on a book cover to successfully convey the genres of mystery, comedy and romance (refer to Figure 4.2 A and B, p.58 for constructing meaning skills experiment material).

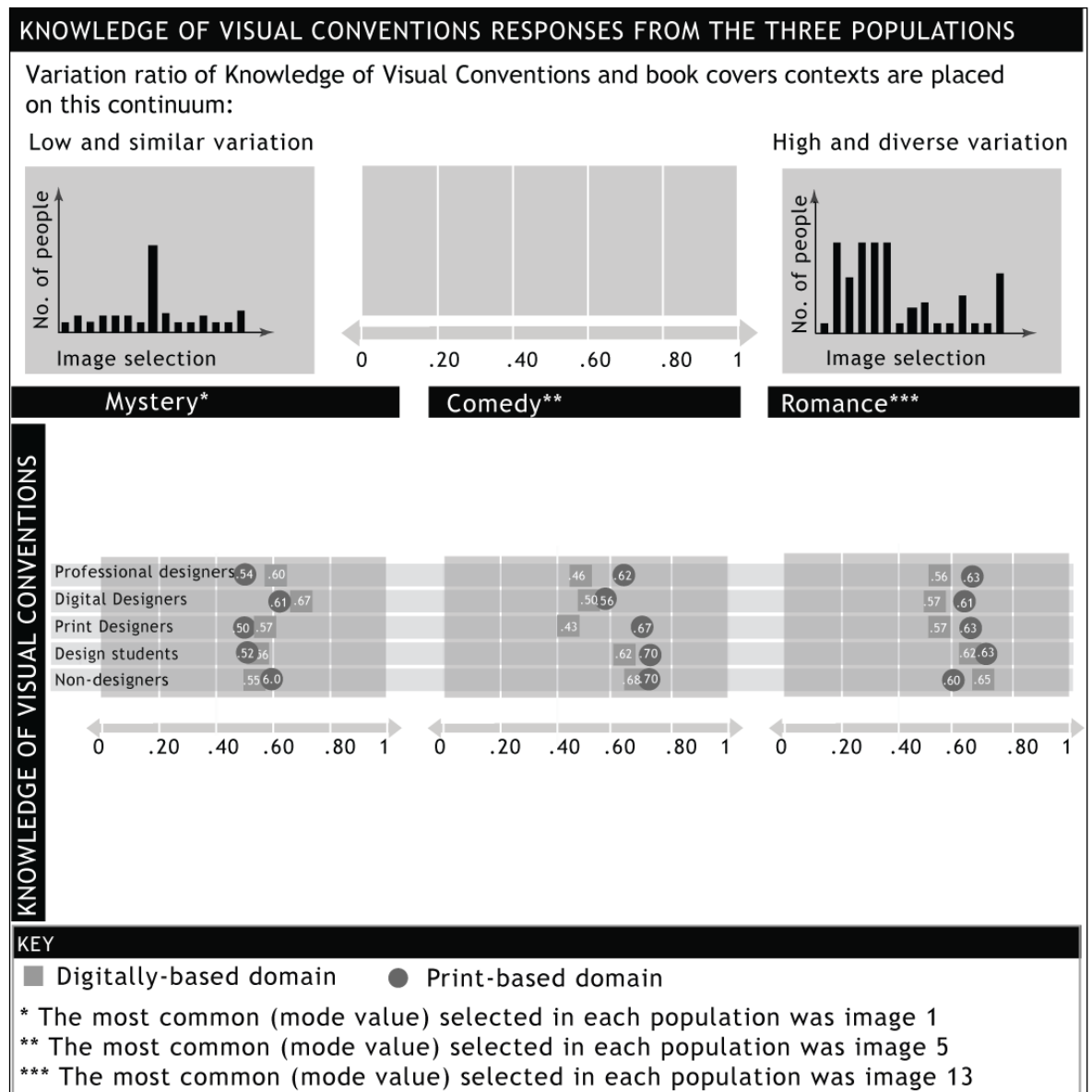


Figure 4.6: Knowledge of visual conventions skills responses from the three populations, mapped to a variation ratio continuum

In summary, an enhanced visual set could not be determined from this visual experiment, as the results were inconclusive. Visual discrimination, association and constructing meaning skills showed a slight difference in a digital domain, however it was inconclusive, as each visual component employed to examine the visual literacy skills, differed in each domain. On the other hand, knowledge of visual conventions skill showed little variation between domains. For instance when considering visual discrimination skills, Figure 4.3, p.63 illustrated that when all three populations altered the contrast of an image, more consistent judgements were observed in the digital domain. However, it was difficult to determine differences between populations in cases where scale was altered. When altering the colour vibrancy of an orange, each population made similar judgements in each domain. This trend followed through to visual association and

constructing meaning skills as shown in Figures 4.4, p.64 and 4.5, p.65. However, this trend was not observed when participants employed knowledge of visual conventions skills to the task of selecting the least appropriate book cover to convey mystery, comedy and romance, as the majority of the three populations had selected the same book covers for each domain (*see* Figure 4.6). Hence no differences were observed between visual literacy skills when selecting a whole image for digital and print mediums.

Due to the inconclusive results of the visual experiment, the second characteristic described in Section 2.5.2, p.33, could not be further explored at this point. However the observation and discussion that follows led to the reframing of the second characteristic, as addressed in Section 5.3.3, p.84.

4.4 Key Observations Informing a Designer's Visual Development

The findings from the visual experiment described above were reviewed; from which, two key observations emerged that indicated how a designer's visual skills develop.

Observation One: Levels of visual literacy skills are not consistent with design experience

Figures 4.3-4.6 illustrated professional designers did not show a greater tendency to select certain answers for each visual component and book cover more often than the design students and non-designers. That is, the professional designers were expected to have lower standard deviations or variation ratios compared with the other two groups, but this was not the case. Hence, in most cases, generic levels of visual discrimination, visual association, constructing meaning and knowledge of visual conventions were not found, as differences between the different groups and their levels of design experience could not be observed.

Observation Two: Comprehending visual meaning involves more individual judgement and cultural factors

Observation one raised questions about how visual skills develop. This line of enquiry led to comparing participants' employment of visual knowledge with their visual comprehension skills sets. When contrasting these skill sets, Figures 4.3, p.63 and 4.4, p.64 indicated lower standard deviations when participants employed visual discrimination and association skills – employment of visual knowledge, compared with their constructing meaning skills (*see* Figure 4.5, p.65) – employment of visual comprehension skills sets. Furthermore, when an individual is constructing meaning, they are using visual discriminatory skills, thus a direct comparison can be made between the employment of visual knowledge and visually comprehending. This comparison showed that when participants are asked to alter a visual component for a context, in this case a book cover (employing constructing meaning skills), there was a greater degree of individualised judgement involved when visually comprehending than when altering a single visual component to demonstrate personal taste (employing visual discriminatory skills). Additionally, there was strong agreement when selecting the least appropriate book cover to convey the genres of mystery, comedy and romance (*see* Figure 4.6, p.66). This may indicate that a strong cultural factor was involved when participants were employing knowledge of visual conventions skills.

4.5 Discussion

Centred on the key observations above, this discussion considers how to observe, understand and foster designers' visual development. However, before these factors are discussed, the research strategy underlying the visual experiment and experiment material is reviewed and considered against observation one. This observation indicated that, at a fundamental level¹⁷, visual literacy skills have no defined levels that are consistent with design experience. This interpretation of the data could potentially mean that professional designers do not have a greater level of visual literacy compared to students or even non-designers, or the research strategy; conversely the experiment material employed to observe designers' visual skills may have been flawed.

To determine if this interpretation is plausible, explanation of the following two tactics underlying the research strategy (outlined in Section 3.2, p.40) that informed the selection of the experiment material were reviewed:

- First tactic: The first tactic considers what to observe; that is participants' construction of visual knowledge through biological processes (visual reading and writing skills). In the experiment, visual reading and writing skills were observed by asking participants to apply each skill three times in each domain; either by selecting a visual component(s) or selecting from a range of images or different book genres, i.e. mystery, comedy and romance. Therefore assessing knowledge and visual skills, as well as evaluating skill use in different domains and expertises addressed the first tactic.
- Second tactic: Employment of an empirical approach to observe visual literacy skills in isolation, independent of context and avoiding cultural influences – therefore the second tactic dictated how to observe designers' visual skills. This tactic was addressed by using scientific methods; isolating visual literacy skills; removing the background of the fruit and vegetables imagery used to assess visual discrimination, visual association and constructing meaning skills. Also the sample was composed of culturally similar individuals to ensure that cultural influences were kept to a minimum.

It was understood that the experiment material was not flawed, as the research strategy had been incorporated into the material. This led to the questioning of a psycholinguistics approach to visual language and literacy upon which the research strategy was based.

¹⁷ In this experiment, a fundamental level referred to small perceptual differences when viewing rather than interpret an image.

Section 2.2, p.22 outlined how understanding, observing and fostering designers' visual development is understood from a psycholinguistics approach to visual language and literacy acquisition to:

- Understand a designer's visual development is to view learning as the gradual development over time of a cognitive and universal visual knowledge through biological processes (visual reading and writing skills) and experiences with visual texts.
- Observe a designer's visual development through investigating individuals' visual knowledge and biological processes (visual reading and writing skills).
- Foster a designer's visual development through coaching a designer's knowledge of visual language to enable them to read, write and think with images in any context. A design educator would achieve this by teaching visual knowledge and providing students with opportunities to engage in physical and cognitive experiences that enable them to create their own understandings. Such a perspective encourages social interaction to challenge and reform students' knowledge constructions¹⁸.

It was determined below, based on the key observations, that a psycholinguistics approach to visual language and literacy is not a substantial base to:

- Understanding designers' visual development: Before embarking on the visual experiment, it was unclear how designers' visual literacy skills actually developed. It could only be speculated that it was through the development of a universal visual knowledge through biological processes (visual reading and writing skills) and experiences with visual texts. Observation one has contributed to questioning how do designers' visually develop, as specific levels of development could not be determined. This raises the question of how a designer develops to be a visual expert. Furthermore, observation two indicates the complexity of developing visual literacy skills in design, as it was observed that as tasks in the visual experiment became more complex, and knowledge was applied to a specific task, a greater degree of individual judgement was exercised by all three populations. In other words, everyone has their own way of seeing, which the literature review implies is learnt from experience and through reflection on visual experiences (*see* Section 2.4, p.29). Therefore developing the ability to reflect-in-action as a designer, as described in Section 2.4 is central to understanding visual development. Thus, from conversations with tutors and peers, a design student develops abilities to question, analyse and synthesise their visual experiences, becoming more able to develop new strategies to engage in visual contexts by themselves. Hence, visual development happens through social interactions as

¹⁸ This understanding of visual pedagogy has been developed from Moje's (2000, p.110) understanding of cognitively-based pedagogy which is similar to the linguistic perspective.

learning to apply visual skills in an appropriate manner is fostered through conversations with others.

- Observing designers' visual development: The experiment did not disprove the existence of a psycholinguistics approach to language and literacy: this would require further research. What was indicated is that it might not be appropriate to employ an empirical approach to measure design students' visual development. Thus a predetermined standard of measurement and observation of literacy levels, (such as literate or illiterate), can only be seen as a snapshot of visual literacy skills, assessing what students know at a particular moment, rather than how they know it. In other words, any standard measurement of visual literacy will assess what students can retrieve from their visual memory, rather than their application of visual knowledge to read or create visual images in a context. In addition, as the tasks in the visual experiment became more complex, there was a greater degree of individual judgement across all three populations as indicated in observation two. This led to questioning the value of any research that observes or measures levels of designers' visual production skills, as such research would not inform the assessor of developmental stages of visual literacy. However, this should not discredit the works of Avgerinou (2001) and Bennett (2001); as Avgerinou (2001) used her assessment to determine whether visual literacy skills exist, and Bennett (2001) assessment helped non-design students to raise their awareness of visual knowledge. A standard empirical assessment may test visual literacy and raise awareness of visual knowledge; therefore, a different research paradigm and strategy is required to observe how this knowledge is applied (outlined in Section 5.4, p.88).
- Fostering designers' visual development: Adopting a psycholinguistics approach offers a predetermined route to becoming a design expert; that is developing designers' visual knowledge of visual language to enable them to read, write and think with images in any context. During this developmental process, students would be guided by the design educator in the development of visual knowledge, which would facilitate an awareness and observation of visual imagery in the outside world. This would lead to developing basic knowledge and comprehensions skills. However, although this viewpoint aids awareness and observation, it limits the development of higher order skills, such as analysis, synthesis and evaluation of visual experiences and processes. This suggests that equipping students with a generic knowledge and set of visual reading and writing skills will aid them to observe the world around them, but may also lead to sterile design practices and fail to develop their ability to apply their visual skills. Hence, based on the points above and considering the personal nature of how visual skills develop, an effective approach to fostering visual development would involve design educators helping students to devise their own approaches to engage in visual contexts. The focus therefore shifts to building

on developing the reflective educational model (*see* Figure 1.1, p.3) found in design education to enable students to reflect in and on their visual development.

4.6 Summary and Conclusions

This experiment became a pilot study investigating designers' visual development, rather than exploring designers' digital visual skills. The visual experiment did not reveal levels of visual literacy skills to be consistent with design experience in reality, and as the experiment became more complex, more individual judgements were observed. This indicated the need to move away from understanding where and when development occurs, towards an understanding of how the design students develop their own way of seeing. As a result, this preliminary experiment led to questioning the ontology held at the beginning of the research programme, which was based on a psycholinguistics approach to language and literacy. This was a key turning point at the outset of the research, which enabled the complexity of visual development in design to be fully appreciated. The ontology held at the beginning of this research, assumed there is a universal knowledge of visual language and processes of using this knowledge that an individual can learn through cognitive means. Based on the discussion presented in this chapter, this ontology came into question in three ways:

- Understanding visual development: This ontology portrays a misleading picture of how designers develop visually. Development does not occur solely from learning a universal visual knowledge and processes (visual reading and writing skills) – everyone has their own way of seeing; therefore development occurs through gaining the ability to reflect on one's own visual experience and development.
- Observing visual development: Empirical methods will not lead to observing designers' visual development as they measure what they know instead of how they can apply their knowledge and understanding to a given task.
- Fostering visual development: This ontology directs educators to develop designers' observational skills, but does not inform how to foster more sophisticated skills involved in the application of knowledge and processes in any visual context. Basically, developing an understanding of visual knowledge is important, but fostering the application of knowledge is crucial.

Therefore, the main outcome of this chapter was that a psycholinguistics view of language and literacy (the epistemological perspective upon which the ontology is based) was the incorrect approach to fostering designers' visual development; an alternative ontology required consideration – a sociocultural approach to understanding and researching designers' visual practices.

Chapter Five: A Sociocultural Approach to Understanding and Researching the Development of Designers' Visual Practices

5.1 Introduction

The preliminary research presented in Chapter 4 led to questioning the ontology that there is a universal knowledge of visual language, and processes of using this knowledge that an individual can learn through cognitive means. In essence, a predetermined way of developing designers' visual development was not sufficient, as it was concluded from the preliminary research that everyone has their own way of seeing. This chapter presents the alternative ontology of a sociocultural approach: that is, everyone has his or her own visual practices, which they form through social and cultural means.

This shift contributed to formulating the research question of how designers' visual practices are developed and fostered. Even though the focus had changed from digital visual skills, posing this question moved the research from focusing on an individual's visual development to a focus on social development of visual practices. Through the presentation of a second literature review and research design, this chapter describes the shift in understanding and researching the development of designers' visual practices.

5.2 A Sociocultural Approach to Understanding the Development of Designers' Visual Practices

This section identifies and then argues that visual development in design education occurs through a sociocultural approach by the presentation of two key areas of literature: (a) sociolinguistic and sociocultural perspectives of literacy, and (b) research into designers' practices.

5.2.1 A Sociolinguistic and Sociocultural Perspective of Literacy

Section 2.2, p.16 outlined that sociolinguistics is the study of language use in society – the exploration of the social functions of language. Basically “language is made as people act and react to one another” (Cairney, 1995, p.1). Therefore, learning happens in a social practice, as being literate depends on what happens in the society, where people are situated. Sociolinguists such as Scribner and Cole (1981) and Street (1984) present a sociocultural perspective of literacy. Scribner and Cole (1981) developed the notion of social practices to move beyond understanding of literacy as the ability to read and write, rather advocating appropriate use of this “knowledge for specific purposes in specific contexts of use” (1981, p.236, cited in Lankshear and Knobel, 2006, p.66). That means that literacy is really like a family of practices – literacies – that will include such “socially evolved and patterned activities as letter writing, keeping records and inventories, keeping a diary, writing memos and posting announcements” (Lankshear and Knobel, 2006, p.66). Alternatively, Street (1984, p.89) framed literacy as a social practice through proposing two models of literacy on a continuum: The first was an autonomous model, as expressed by students' acquisition of generic reading and writing, while at the other end of the spectrum was an ideological model of literacy that characterises the way in which it occurs and is used in daily life; thereby presenting literacy as a social practice. By explicitly proposing these two models, Street was fostering an alternative perspective – positioning literacy as a social practice and challenging an autonomous model.

In essence, a sociocultural view of literacy is a social practice – where language use and cognitive skills develop through social interactions within a social organisation (Street, 1984, p.103). Gee (1996) a leading literacy theorist extended the notion of literacy as a social practice to include the concept of Discourse – how language or ways of interacting are used to develop a person's identity or way of being in a social group. Gee (1996) described:

“(1) Primary Discourse are those to which people are apprenticed early in life during their primary socialization as members of particular families within their sociocultural setting... our first social identity...and (2) Secondary Discourses are those to which people are apprenticed as part of their socialization with various local, state and national groups and institutions outside easily home and peer-group socialization–For example, churches, gangs, schools, offices.” (p.137)

“Discourses are ways of being in the world, or forms of life which integrate words, acts, values, beliefs, attitudes, and social identities, as well as gestures glance, body positions, and clothes.” (p.127)

“A Discourse is a socially accepted association among ways of using language, other symbolic expressions, and ‘artifacts’ of thinking, feeling, believing, valuing, and acting that can be used to identify oneself as a member of a socially meaningful group or ‘social network’, or to signal (that one is playing) a socially meaningful ‘role’.” (p.131)

Street and Lefstein (2008, p.143) understand literacy practices are the cultural use of written language in daily life, made up of sets of literacy events (Barton, *et al.*, 2000, p.13) which are “any occasion in which a piece of writing is integral to the nature of participants’ interaction and their interpretative process” (Heath, 1983, p.93). Therefore, literacy events always exist in a social context (Street and Lefstein, 2008, p.144). As an example, a literacy event is signing a cheque, the literacy practice is filling in that cheque, and the social practice is banking (Pahl and Rowsell, 2005, p.12). Or in design, a literacy event is the taking of a picture with a camera, the literacy practice is photography, and the social practice is the discussion of the picture in the design studio. Therefore it can be implied when fostering literacy practices, that the focus shifts to fostering the literacy events which make up literacy practices, fostering depths of engagement – how they are engaging in the situation, how they apply their reading and writing skills *in situ*. i.e. How they are taking a picture, by what means are they taking the picture, how does it relate to the background? In summary, from a sociocultural approach (i.e. literacy as a social practice) development occurs through the use of literacy *in situ*, as:

- Knowledge and meaning are socially constructed.
- There are visual literacies and practices that evolve socially and culturally and are used in daily life.
- Cognitive development of knowledge and processes are a product of interacting with a social and cultural world.
- Literacy is a way of being (acts, values, beliefs, attitudes, and social identities) as part of a social group.

These aspects of a sociocultural perspective of literacy appear in the works of Raney (1999), Schirato and Webb (2004) and Elkins (2003; 2008) when discussing the use of visual meaning, language and literacy *in situ*. Raney (1999, p.43) understands visual meaning as socially constructed, fluid, open, unstable, made and remade. Schirato and Webb (2004) contend that the linguistic perspective might not be appropriate for application to images, as they use the points made by Barthes (1997) to contend,

“images do and don’t have a relationship to linguistic texts; as imagery may be a language, but it doesn’t work like linguistic language, or possess the sense of grammatical

organisation and structure (in terms of verbs, subjects, connectors and so on) that we expect from words. Images don't have a tense." (p.65)

Schirato and Webb (2004) therefore imply visual language is socially constructed and context dependent. Furthermore Elkins (2003) argues, "visual literacy has more to do with interpretation than knowledge; because what matters is how the visual objects are put to work in different contexts" (p.140). For this reason a sociocultural perspective shifts the understanding of visual literacy from the ability to develop visual knowledge as a means of reading and writing images – a psycholinguistic viewpoint, to considering depths of engagement with a particular visual context when interpreting and constructing visual meaning. The depths of engagement would be the literacy events that inform the development of visual practices.

In terms of defining depths of engagement with a particular visual context, which can be expressed through signs of engagement with a literacy event, it is proposed to use a schema of looking and seeing. This categorises the depth of engagement and incorporates visual skills, behaviours, emotions and attitudes.

"Seeing...is not a question of mechanically reacting to stimuli. We only see what we look at. To look is an act of choice. As a result of this act, we see what was brought within our reach" (Berger, 1972, p.8). Looking and seeing are connected to Dunne's (1999, p.59) comments on Dewey's (1958) distinction between recognition and perception: recognition of an object and relating it to what we already know differs from the perception of an object we are actively engaging with, "so that its qualities may modify previously formed habits or schemes" (Dewey, 1958, cited in Dunne, 1999, p.59). During the process of perception we learn to see and appreciate an object. To recognise is not to question and therefore may lead to inaccurate assumptions rather than growth and learning through active perception and defamiliarisation. For reasons of clarity, looking and seeing, as forms of engagement, are defined in terms of this research as follows:

- Looking is a passive visual experience where the designer looks around at the familiar; they recognise what they find, and learn through trial and error without necessarily understanding how or why they have achieved the final result.
- Seeing is an active visual experience, where the designer inspects the familiar until it becomes unfamiliar; stepping outside and seeing the bigger picture and questioning what they do not understand.

It should be understood that looking and seeing are on a continuum: depending on the situation, an individual could be just looking until they come across something unfamiliar that they are

interested in, which they then question, and begin to see and engage with more deeply, within a visual context.

5.2.2 Situating a Sociocultural Approach in a Designer's Practice

This section considers how literacy as a social practice and looking and seeing are situated in a designer's practice.

Bucciarelli (1998, cited in Visser, 2006, p.90) understands design to involve more than cognitive processes, although a designer's knowledge and heuristics are essential ingredients, he considered designing to be a social process. Typically a design project is so complex that one individual will not have the diverse set of competences required to complete the project – “designers rarely work alone” (Löwgren and Stolterman, 2007, pp.32-3). Dong (2009) has provided an in-depth account of how design is a social process:

“design activity grows out of the particular situation, and that the social sphere influences the situation, the choice of tools, the symbol systems and the cognitive process of the individual designer...Socio-cultural systems are typically described as consisting of five basic components: 1. Population 2. Culture 3. Material products 4. Social organization[sic] 5. Social institutions. In describing design, the designers constituted the population and the products of their cognitive residua the material products. The culture consisted of the designers' technical design tools and methods, that is, their symbol systems and the information they convey. Technically design tools and methods are a “cultural medium”, they provide the structure for the transmission and propagations of cognitive stated and encode patterns of behaviour[sic]...The social organization[sic] and institutions within which the designer practices affect cognitive process and development: design knowledge acquired through experience (e.g. formal education, communicates of practice) informs the designer how to engage the natural and artificial world to create artifacts to satisfy human needs and desire.” (pp.29-30)

Thus it would seem a designer's practice centres around sociocultural activities that develop their cognitive processes. This realisation led to understanding the experiential and reflective educational models described in Section 2.4, p.27 in a new way as they are centred around social practices i.e. designers observing and experiencing the outside world, designing and reflecting with others, and in doing so, assimilating feedback from their tutors and peers on board. These social practices lead to developing new approaches to engage in visual contexts. Furthermore designers acquire their design professionalism, their attitudes, work-habits and values, through socialisation and enculturation (Holm, 2006, p.68). Therefore, involving themselves in social practices, as well as being part of a social group develops a designer's visual practices.

The positioning of looking and seeing in a designer's practice must be considered when seeking to understand how these depths of engagement are inherent in the development of visual practices. Every design project a designer is responsible for thinking (defining the problem, producing

concepts, understanding the audience, providing solutions) and producing an artefact(s) that meets the requirement of a design brief; the visual aspects of this are outlined in Section 2.3, p.23. Every situation a designer deals with can include ambiguity, lack of definition and uncertainty (Spencer, 2008, p.2). In effect, designers respond to constant change and deal with real life problems that are complex and have no definitive answer. “In order to cope with ill-defined problems, designers have to learn to have the self-confidence to define, redefine and change the problem-as-given in the light of the solution that emerges from their minds and hands” (Cross, 2006, p.7). Designers deal with complexity through an iterative design process of analysing and synthesising the problems and solutions throughout a design project. This has been described in many ways by design theorists: for example, Jones (1980) understands design to be a process of analysis, synthesis and evaluation, for Schön (1987; 1983) design is a process of naming, framing, moving through action and evaluating through reflecting. Spencer (2008) contends that what limits a designer is their ability to engage and develop the design situation:

“Designing is an attentive conversation with the materials of the situation. Designing is limited by designers’ ability to remain engaged with the design situation and their ability to develop the design situation. Expert designers develop strategies to encourage their engagement with the design situation and ensure that they continue to reflect-in-action and continue learning how to design.” (p.10)

The discussion in this section implies there are depths of engagement to a designer’s practice that involve iterative processes of analysis and synthesis to explore and provide a solution to an ill-defined problem. During this iterative process, a designer develops visually through reflecting on experiences that lead to different types and depths of visual engagement, i.e. looking and seeing.

5.2.3 A Sociocultural Approach to Designers’ Visual Practices

This section summaries a sociocultural approach to understanding the development of designers’ visual practices. Section 2.4, p.27 described that visual development occurred through five principles: doing, dialogue, demonstration, critique feedback and self-reflection. The process of doing enables designers to gain visual experience(s), and through dialogue, demonstration and critique feedback they are assisted to self-reflect. Self-reflection leads to different types and depths of visual engagements which are appropriate for exploring and communicating a solution to an ill-defined problem. Each of the principles lead to designers’ visual practices being constructed *in situ*, formed through informal social interactions and communication during tutorials and design critiques. In Section 5.2.1 it was argued that, from a sociocultural approach, development occurs through the use of literacy *in situ* as: knowledge and meaning are socially constructed; visual literacies and practices evolve socially and culturally through their use in daily life. Cognitive development is a product of interacting with the social and cultural world; and literacy is a way of being. Therefore, based on these key arguments involved in development – learning in design

education can be understood to occur through a sociocultural approach. From this understanding an alternative ontology was formed:

Everyone has his or her own visual practices, which they form through social and cultural means.

This shift in understanding visual development from a sociocultural approach, moves beyond the view that development occurs solely through cognitive knowledge and biological processes, to the view that designers' visual practices¹⁹ are constructed *in situ* through facilitating social interactions. These interactions enable individuals to reflect on their visual practices to develop approaches, which are then used to engage and develop visual contexts.

¹⁹ Based on the notions of Street and Lefstein (2008, p.143) regarding literacy practices, visual practices for this research programme are: the general cultural ways of utilising visual language which people draw upon in their lives. In the simplest sense, visual practices are what people do with visual literacy. Visual practices are the general cultural ways of utilising visual language that people draw upon in their lives.

5.3 Characteristics of a Sociocultural Approach

This section presents three characteristics that provide a process to explore the fostering of visual practices through a sociocultural approach in design pedagogy. The formation of pedagogy from a sociocultural perspective aims to create communities of practice in which students work collectively to use knowledge appropriately or to produce new understandings of experience²⁰. Thus, development occurs through social interactions in a community of practice. Therefore for this research, the characteristics outlined below are defined as: Features of a visual pedagogy²¹ that facilitate reflection on visual practices through social interaction within a community of practice. The social interactions (design critique, conversations with tutors and peers) that take place informally in the reflective educational model (*see* Section 2.4, p.27) enable design students to reflect on and then develop their own visual approaches to engagement in a visual context. For this reason, it is important to recognise that the characteristics build on the reflective educational model to innovate the development of visual pedagogy in design. Each characteristic describes the type of reflection involved in the development of designers' visual practices and outlines processes that could be used to foster such practices.

5.3.1 First Characteristic: A Shared Understanding of Visual Practices

The first characteristic outlines processes intended to foster reflection through development of a shared understanding of a community's visual practices. Enabling visual development through this type of reflection presents an opportunity to aid an individual to observe, reflect and improve on how they apply their visual knowledge and skills. This type of reflection is informally fostered through dialogue during a design critique. A design critique is a central element in the learning process in design education, where students engage in dialogue with their educators and peers about their work and learning. In this situation, a group of students are inducted into a design practice, developing useful knowledge and a way of conversing or being part of a particular social group. This characteristic builds on this learning situation, with the intent of fostering visual practices through the processes outlined below:

²⁰ This understanding of visual pedagogy has been developed from Moje's (2000, p.110) understanding of socioculturally based pedagogy.

²¹ The traditional notion of pedagogy adopted at the outset of the research as "the art and science of teaching" (Knowles, *et al.*, 1998, pp.61-2) did not reflect the social nature of fostering visual practices. Hence, the research adopted Mortimore's (1999) definition of pedagogy: "any conscious activity by one person designed to enhance learning in another" (p.3). This definition suggests that pedagogical models are developed to enhance an individual's learning process, involving all members of a group, instead of implying that the purpose of pedagogy is teacher-directed education. Hence visual pedagogy was defined as: Any conscious activity by one person designed to enhance visual learning in another.

- Observation of a community's visual practices: The need to observe the community's visual practices to enable development, is based on Street's (2001) notion of learning from a sociocultural perspective, which outlines that fostering literacy practice requires starting from an understanding of where the learning is currently situated:

"we need to 'start where the people are', with what they already do, and help them to transform their own lives in their own ways for their own purposes, rather than to impose our literacy for our own purposes on them, in the process ignoring or despising their existing patterns of literacy and development practices." (p.221)

A picture of a community's visual practices is built through observing forms and depths of engagement over a number of visual contexts. Understanding the community's visual practices is based on the idea of what literacy practices are: literacy practices must be understood in terms of a property of group interactions, focused on the social practices where reading and writing occur and for what purpose they are undertaken. As Street and Lefstein (2008) contend:

"Practices are shaped by social rules which regulate the use and distribution of texts prescribing who may produce and have access to them. They straddle the distinction between individual and social worlds, and literacy practices are more usefully understood as existing in the relations between people, within groups and communities, rather than a set of properties residing in individuals." (p.143)

Literacy practices cannot be observed directly, as Street and Lefstein (2008) stated, "literacy practices are not observable units of behaviours since they also involve values, attitudes, feeling and social relationships" (p.143). Therefore, when attempting to understand literacy practices, the concepts of literacy events are observed, as these enable researchers to focus on a particular situation, observing where reading and writing skills are being employed (Street, 2001, p.11). Observation of these literacy events is not as straightforward as it may appear; Street (2001, p.11) states that if a researcher is observing as a non-participant, literacy events can only provide descriptive information, and will not inform how meaning is constructed. Street (2001, p.11) recommended that the researcher interacts with the situation, simultaneously asking questions, listening to what is going on and linking the information gathered to participants actions. This means that the researcher cannot predict the outcome of a literacy event and/or how it may link to a set of literacy practices outlined by Street (2001, p.11). Understanding engagement in particular contexts, would involve evidencing visual practices as expressed through signs of engagement with a literacy event. Section 5.2.1 proposed the use of a schema devised for looking and seeing; two forms of visual engagement that incorporates visual skills, behaviours, emotions and attitudes. A schema of this nature would enable forms of

engagement with literacy events to be categorised to build a picture of the community's visual practices.

- Communication of a community's visual practices: There is an opportunity to create communication tools, based on observation of a community's visual practices. Communication of a community's visual practices through a tool has the potential to facilitate designers to develop and reflect on a shared understanding.

5.3.2 Second Characteristic: Reflective Articulation of Visual Practices

The second characteristic was outlined in Section 2.5.1, p.32 as enhancing an individual's development and apart from its title – reflective articulation of visual practices, it remained unchanged. To reiterate, this characteristic builds on the circumstances that a design project provides, to encourage self-awareness of an individual's own visual practices that can be explicitly communicated to others. This opportunity to facilitate self-reflection on visual practices presents an opportunity to enable more effective feedback to be gained, as an individual is more able to communicate these practices, as awareness of visual activity develops. Consequently, feedback gained leads them to develop different approaches to engage in a visual context. The process of enabling self-assessment through such methods as a reflective journal (described in Section 2.5.1, p.32) has the potential to improve articulation of visual practices, as awareness of visual activity develops.

5.3.3 Third Characteristic: Critical Questioning of Visual Practices

The third characteristic outlined processes intended to facilitate critical abilities enabling an individual to question what and how they see. This type of questioning has the potential to enable more active seers that are able to perceive hidden relationships in an individual's or community's visual practices. This characteristic developed from an opportunity to help design students to engage in different visual languages and practices²², and is based on two primary needs. The first need for every design project is for the designer to engage in different visual languages and practices, requiring them to reach beyond the design studio and question what they are seeing. The second need is that design students must be equipped to deal with constant changes to their visual practices; this aspect came from the idea that each new digital hardware and software development produced a new form of visual grammar – the original focus of the thesis. Therefore, as digital

²² The third characteristic was based on the second characteristic outlined in Section 2.5.2, p.33: enhanced visual skills, which was concerned with the identification and fostering of the enhanced visual skills design student require to engage in work in a digital domain. However, neither the alternative ontology nor the research focus fitted with this intent. What can be transferred from the original characteristic is the notion that designers have to adapt to changing visual skills as digital practices evolve.

practices evolve, design educators will no longer be able to impart all elements of the visual practices students will need for their design careers. Thus, this second need requires students to develop self-knowledge of these elements in order to improve and develop their own strategies of seeing. This is similar to Berger's (1972) critical theory on ways of seeing, which, although it focuses on the image, clearly outlines the relationship between what and how we see:

“the way we see things is affected by what we know or what we believe. Every image embodies a way of seeing... The photographer's way of seeing is reflected in his choice of subject. The painter's way of seeing reconstituted by the marks he makes on the canvas or paper. Yet, although every image embodies a way of seeing, our perception or appreciation of an image depends also upon our own way of seeing.” (pp.8-10)

To define the critical abilities involved in an individual questioning what and how they see, requires a description of critical theory which has two aspects particularly relevant to this study; hermeneutics and critical social theory. “Critical theories are frameworks aimed at challenging and destabilizing established knowledge” (Mertens and Ginsberg, 2008, p.54). Hermeneutics is a process of interpretation and explanation, to transform what is unfamiliar to understanding (Jasper, 2004, p.7; Rodgers, 2005, p.146-7); in other words, to see a situation or improve understanding in new ways. Hermeneutics has informed questioning about purposes and procedures of interpretation (Kincheloe, 2008, p.58) and fostering open-mindedness and receptiveness (Thiselton, 2009, p.16). Therefore in the context of this research, an individual's critical ability to question what they see involves evaluation of visual practices to understand and explain the visual world beyond the design studio; in other words, enabling an individual to see in a new way in different visual contexts.

Whereas “critical social theory is a mode of reflection that looks critically at processes of social development from the point of view of the obstacles they pose for individual human flourishing” (Cooke, 2004, p.418). Foremost in the field of critical social theory has been Freire's (1972) work on the *Pedagogy of The Oppressed*²³. This focused on reflexivity and self-knowledge to enable people to be transformed and empowered as part of a social group. Basically, critical social theory informed how an individual questions themselves in their social situation, leading to critique and change. Based on this understanding of critical theory, there is the potential to enable designers'

²³ Freire's pedagogy was a philosophy on teaching that offered social processes of critical reflection, in order to empower individuals. Freire's pedagogy came from being frustrated with the literacy programme designed for the poor in Brazil. This programme viewed literacy as the process of decoding language, in doing so stripping away its usefulness, and well as the literacy instructor talking down to the people on the programme (Carlson, 2002, p.69). Out of this frustration, Freire's theory began to develop a pedagogy that centred around reflexivity, contending “literacy only make sense the consequence of man's [sic] beginning to reflect about their own capacity for reflection” Reflexivity, in turn, leads to praxis, the “power to transform the world” [Freire, 2000, p.48] by thinking in new ways, to understand oneself as a producers of culture rather than merely a passive recipient of a given culture (Carlson, 2002, pp.69-70). However development of self-knowledge through education cannot be done alone, it is gained through identifying oneself with a social group (Carlson, 2002, pp.69-70).

development through facilitating them to understand how their own visual literacies and practices fit into their social world. In other words, an individual's critical ability to question how they see involves reflexivity on visual practices, leading to self-knowledge and the ability to transform them.

Ennis (1989, p.4, cited in Bose, 2007, p.134) has outlined three ways of teaching the subject. The first is on a separate course that is not related to the subject matter, the second is an infusion approach, where critical thinking activities are directly linked to subject matter, and rules of engagement are made explicit. Finally, the third is an immersion approach, whereby the rules of engaging in critical thinking are not made explicit in relation to the subject matter. Bose (2007, p.134) believes design education develops a student's critical ability through an immersion approach, as the rules of being critical are not explicitly discussed. Based on Bose's beliefs, it could be argued that the student's ability to be critical of what and how they are seeing is informally and implicitly fostered in design education. It is speculated that lectures and exercises foster students to question what they see. Questioning of how they see may occur from encountering a problem, or after conversations with design educators or peers. The process below, outlined in Bose's terms, is an infusion approach to the fostering of students' ability to questioning critically what and how they see:

- Processes of exploration and questioning: Enabling exploration and questioning of the visual world, through stories and metaphors, has the potential to enable individuals to evaluate visual practices – facilitate an individual's critical ability to question what they see. Methods such as those of Perkins (1994) and Stilgoe (1998) facilitate exploration and questioning of the visual world. Perkins (1994) uses a dialogue between Dr. Watson and Sherlock Holmes to show, through a story, how each character sees and analyses the world around them, whereas Stilgoe (1998) encourages questioning and exploration of the world outside. Such methods defamiliarise²⁴ an individual from what they are seeing and observing, reframing their perceptions through the use of stories and metaphors, which aid them to question the world around them, in a social way. This contributes to design students developing the ability to apply their visual literacy skills in different social and cultural practices. In addition, they gain the understanding that visual meaning is socially and culturally constructed, and can then develop the ability to deconstruct and reconstruct visual text to extend their experience beyond what they are formally taught. As a result, students develop a mindset that is open, enabling them to understand different ways of seeing.

²⁴ Defamiliarisation is "an artistic technique which makes the familiar seem strange by jolting the reader/viewer out of habitual perception" (McQuillan, 2000, p.316).

- Process of metacognitive regulation: Development of activities that assist metacognitive regulation has the potential to facilitate reflexive ability – self-knowledge of and knowledge of how to transform visual practices; facilitate an individual’s critical ability to question how they see. Reflexivity involves the notion of metacognitive²⁵ knowledge (metacognitive awareness) (Flavell, 1979, 1987 cited in Livingston, 2003, pp.2-3), which enhances learners’ awareness of their own and others’ cognitive processes. However, it is important to note that self-knowledge occurs through identifying oneself with a social group; it cannot be done alone Carlson (2002, pp.69-70). To achieve this, the educator develops activities that assist metacognitive regulation, these are sets of activities that produce an experience that assists learners to control and develop their own learning, leading to self-regulation²⁶ (Flavell, 1979, 1987, cited in Livingston, 2003, pp.2-3), i.e. enabling reflection on themselves and with others, leads to an individual’s visual practices being externalised and areas for improvement being recognised. Hartman (2001, p.14) states that teaching strategies to develop students’ metacognitive ability should enable them to become aware of when to use particular learning strategies, through self and group generated activities. Hartman (2001) believes this can be achieved through a number of:

“instructional practices. My own preference is for an interactive approach that blends direct instruction, teacher and expert students modelling, reflection on the part of students, and group activities that allow students to share their knowledge about cognition.” (p.14)

When considering how they see, the focus is on developing students’ domain general metacognitive knowledge²⁷, through provision of learning experiences that enable them to become aware of their visual practices and to understand areas of change.

²⁵ “Metacognition refers to one’s knowledge concerning one’s own cognitive processes or anything related to them, e.g. the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact” (Flavell, 1976, p.232).

²⁶ “Self-regulated learning describes how learners control their thoughts, feelings, and actions in order to achieve academically” (Zimmerman and Schunk, 2001, p.vii).

²⁷ There is a distinction between domain-general and domain-specific metacognition (Smith and Pourchot, 1998, p.92; Perfect and Schwartz, 2002, p.59). Domain-general refers to metacognition that transcends particular subjects or content areas, such as setting goals. Domain-specific refers to metacognition that is applied in particular subject or content areas, such as editing an essay or verifying one’s answer to a mathematics problem. This research is concerned with domain general metacognition in terms of fostering designers’ ability to plan, monitor and evaluate their visual practices, as well as maintaining motivation to complete a visual activity. Domain specific metacognition was not chosen, as knowledge of a design practice is required before this ability can develop. In addition, this ability would not assist students to engage in changing social, cultural and technological contexts.

5.4 Research Paradigm and Design: A Sociocultural Approach to Researching the Development of Designers' Visual Practices

The research design process described in this section showed how a response to the research question was achieved. This description presents the alternative direction taken to explore the development of designers' visual practices that replaces the preliminary research design outlined in Section 3.4, p.49.

The direction shifted as the research philosophy outlined in Section 3.4 was not longer aligned with this assumption and that the nature of the knowledge to support this assumption was presented in Section 5.2. Therefore the research philosophy held from the outset was revisited. This review took into account the new assumption presented in Section 5.2 of developing and fostering designers' visual practices – the alternative ontology, and the nature of knowledge on which this assumption was grounded – the epistemology. That is, it is assumed that everyone has his or her own visual practices, which they form through social and cultural means – the alternative ontology. This assumption was based on a sociolinguistic viewpoint of literacy – where it is understood that literacy is a social practice and that cognitive development occurs as a by product of interaction with a social and cultural world (*see* Section 5.2.1) – the epistemology. These two aspects formed the research philosophy of this study.

This revised research philosophy led to adoption of an interpretivist rather than a positivist stance; moving to the qualitative paradigm, described in the next section.

5.4.1 Research Paradigm - Qualitative Research

This section describes the reasons why qualitative research²⁸ was deemed an appropriate means to approach the research question.

In the preliminary research presented in Chapter 4, quantitative research was not effective for exploring a designer's visual development; a rationale that was based on the key observations and conclusions drawn from the preliminary research. In Section 4.5, p.69 it was argued that everyone has their own way of seeing; therefore development occurs through gaining the ability to reflect on one's own visual experience and development. For this reason, a formal measurement against

²⁸ Qualitative research has been defined as “a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible these practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recoding, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative research study things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them” (Denzin and Lincoln, 2005, p.3).

others is meaningless. Furthermore, a numerical form can only examine knowledge and comprehension, but cannot inform how designers apply their visual skills to a given task; measuring what is known instead of how it is known. Given these two reasons, a quantitative paradigm was not appropriate to explore the research question, and an alternative was required.

In order to conduct research from a sociocultural approach to learning requires observation of social events and interactions with people:

“A key feature of this emergent view [the sociocultural perspective] of human development is that higher order functions develop out of social interaction. Vygotsky argues that a child’s development cannot be understood by a study of the individual. We must also examine the external social world in which that individual life has developed...Through participation in activities that require cognitive and communicative functions, children are drawn into the use of these functions in ways that nurture and ‘scaffold’ them.” (Tharp and Gallimore, 1998, pp.6-7)

Therefore observing learning from a sociocultural approach involves three aspects²⁹: uncovering the language and literacy knowledge held by people and discovering how learning occurs in their communities; documenting the role of the tutor as a crucial mediator of languages and literacies in different contexts; enabling people involved in the learning community to have a voice and documenting what is important to them. As a sociocultural approach to learning is socially constructed in a community, qualitative research was deemed appropriate, as this paradigm would provide the means to capture development through recording interactions and differing viewpoints.

5.4.2 Research Aim and Design Framework

As discussed in Chapter 1, the aim of this study is to increase our knowledge of developing and fostering designers’ visual practices. Sub-aims were formulated, namely

- To describe the learning attributes involved in the development of designers’ visual practices.
- To determine processes used to help foster designers’ visual practices.

Table 5.1 presents the design framework that incorporated the sub-aims. The design framework was created based on the literature in Sections 5.2 and 5.3 to explore and expand a sociocultural approach. The design framework was created with four main pillars – a sociocultural approach, a shared understanding, reflective articulation and critical questioning of visual practices. The

²⁹ These three aspects were based on Gregory *et al.*, (2004) three key principles of sociocultural approach to literacy learning: “recognizing that cultural and cognition create each other...Acknowledging that a joint cultural creation between teacher and child in classrooms is critical for learning...Giving a voice to those whose voices would otherwise not have been heard” (p.8).

research question is concerned with how designers' visual practices are developed and fostered. The content of each pillar, therefore, defined the learning attribute(s) and process(es) used to help foster designers' visual practices.

Table 5.1: The design framework

	The pillar of the design framework			
	First pillar	Second pillar	Third pillar	Fourth pillar
Names	A sociocultural approach to developing and fostering designers' visual practices	A shared understanding of visual practices	Reflective articulation of visual practices	Critical questioning of visual practices
Reference	Section 5.2	Section 5.3.1	Section 5.3.2	Section 5.3.3
Definition	Everyone has his or her own visual practices, which they form through social and cultural means.	An individual's ability to develop a shared understanding of a community's visual practices.	A self-awareness of an individual's own visual practices that can be explicitly communicated to others.	An individual's critical abilities to question what and how they see.
A description of the learning attribute(s) involved in the development of designers' visual practices.	Reflection on visual practices: Development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices.	Reflection on a community's visual practices: Development of a shared understanding of a community's visual practices presents an opportunity to enable an individual to observe, reflect and improve on how they apply their visual knowledge and skills.	Self-reflection on visual practices: Facilitating self-reflection on visual practices presents an opportunity to enable more effective feedback to be gained, as an individual is more able to communicate their visual practices, as awareness of visual activities develops.	Evaluation of visual practices (what they see): Facilitating evaluation of visual practices presents an opportunity to enable more active seers that are able to understand and explain the visual world. Reflexivity on visual practices (how they see): Facilitating reflexivity on visual practices presents an opportunity to develop self-knowledge and the ability to transform them.

Table 5.1: The design framework (Continued)

	First pillar	Second pillar	Third pillar	Fourth pillar
Process(es) that have the potential to help foster designers' visual practices	Facilitating social interactions: Facilitating social interactions in different learning situations (i.e. design critique, conversations with tutors and peers) can enable reflection on visual practices.	Observation and communication of a community's visual practices: Building a picture of a community's visual practices by observing forms and depths of engagement over a number of visual contexts provides an opportunity to create communication tools. Communication of a community's visual practices, through a tool, has the potential to facilitate designers to develop and reflect on a shared understanding.	Self-assessment on visual practices: Enabling self-assessment through a reflective journal has the potential to improve articulation of visual practices as awareness of visual activities develops.	Facilitating exploration and questioning: Enabling exploration and questioning of the visual world, through stories and metaphors, has the potential to enable individuals to evaluate visual practices. Metacognitive regulation: Development of activities that assist metacognitive regulation has the potential to facilitate reflexive ability – self-knowledge of and knowledge of how to transform visual practices.

5.4.3 Research Design, Strategy and Methods

This section describes the research design process (*see* Figure 5.1). The employment of a qualitative paradigm informed the research process, selection of the research strategy (design-based research), methods (design experiments and user testing), and the process of data collection, analysis and interpretation – outlined in the next section. Section 5.4.5 describes the practices implemented to ensure the results of this study presented in Chapter 9 were valid.

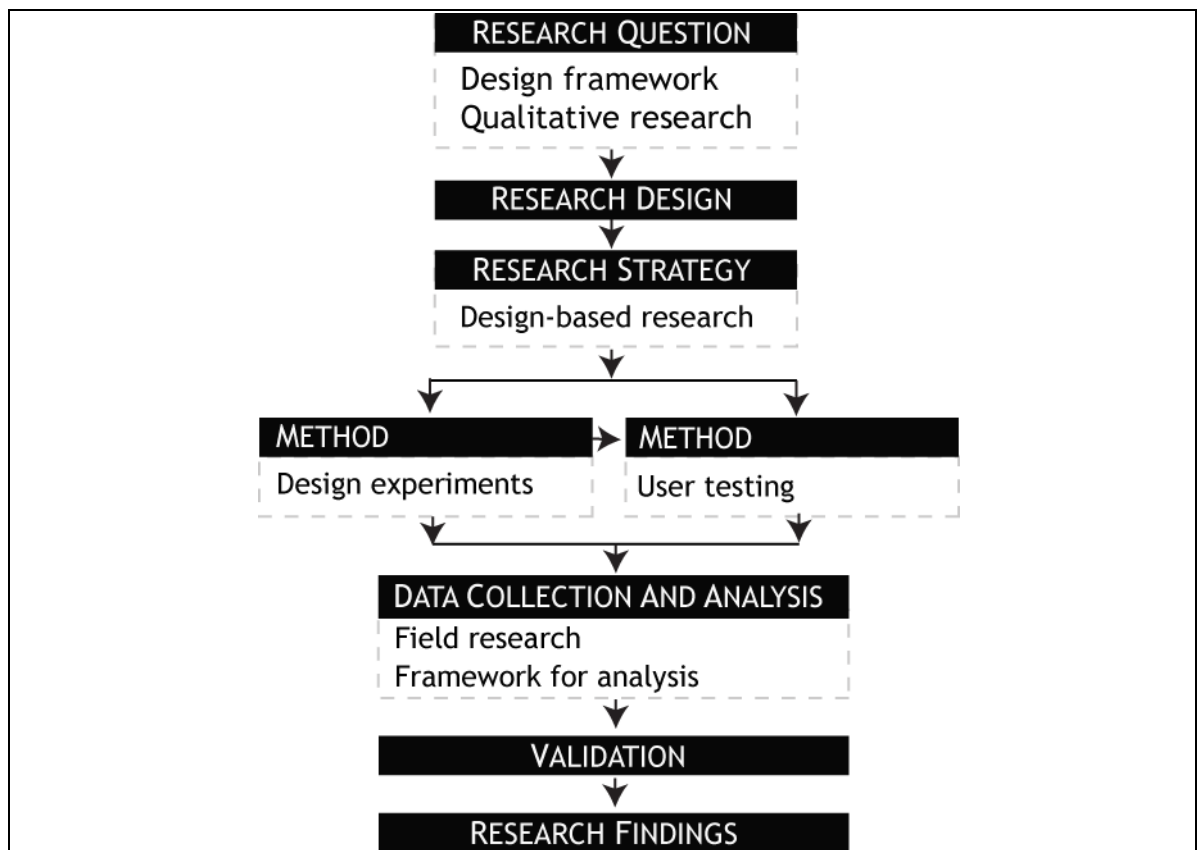


Figure 5.1: Research design process

A design-based research strategy was appropriate, as it would enable the underlying attributes and processes of developing and fostering visual practices to be externalised through designing and testing of teaching-learning artefacts. Design-based research in an educational context has been defined as “the study of learning in context through the systematic design and study of instructional strategies and tools” (Design-Based Research Collective, 2003, p.5). Furthermore,

“Design-based research is not so much *an* approach as it is a series of approaches, with the intent of producing new theories, artifacts, and practices that account for and potentially impact learning and teaching in naturalistic settings...Design-based research involves flexible design revision, multiple dependent variables and capturing social interaction. In addition, participants are not “subjects” assigned to treatments but instead are treated as co-participants in both the design and even the analysis.” (Barab and Squire, 2004, pp.2-3)

Therefore the rationale for the use of a design-based research strategy is that visual practices are fostered through informal social interactions, and only through dialogue and design decisions – which are a result of the teaching-learning artefacts – can in-depth knowledge and understanding of the research phenomena be externalised. The nature of an artefact distinguishes design-based research from an action research approach, as action research is purely focused on the researcher, as a practitioner, developing his/her own actions, and not on the artefact itself (Juuti and Lavonen, 2006, p.62). In design-based research, the dialogue around the artefact(s) and their design, leads to

the outcome of the research being relevant to design educators' teaching practice, however it is not seen as a universal solution.

A design-based research strategy led to the employment of two phases of research: design experiments with students and user testing with educators.

Guided by the design framework in Table 5.1, pp.90-1 the first research phase of the design experiments involved iterative cycles of designing and testing teaching-learning artefacts to help foster students' visual practices. The goal of a design experiment is:

“to produce deep understanding of how individual or group outcomes relate to the learning environment (Brown, 1992, Collins, 1999; Sutor, 2000)... such experiments are grounded in an iterative, cyclical interaction among phases of design, implementation, and analysis.” (Haertel and Means, 2003, p.34)

Therefore, employment of a design experiment method combines what is known about learning, both theory and practice, in order to understand how learning occurs. Section 6.2.1, p.108 outlines in full the approach to designing the teaching-learning artefacts in the learning situation. Two underlying features of this approach to designing were reflection and collaboration. The approach described required the researcher to assume the role of participant as observer³⁰, taking the role of the primary tutor, which provided the flexibility to allow for different teaching-learning artefacts to be designed, implemented and refined as the iterative design cycles progressed. Additionally, this role enabled a collaborative atmosphere between all those in the learning situation which assisted in the refinement of designs. During the process of designing the practices of reflection were observed, in order to increase self-awareness of how design decisions were made, and to ensure that teaching-learning artefacts were not directed by the desire to assist the research but rather carried out in collaboration with co-participants.

³⁰ McKernan (1996) has defined participant as observer as: “the observer and the subject ‘know’ that this is simply a ‘field relationship’ and that the researcher is there only as long as the study continues... The researcher has a two fold goal: to take on the role of a participant in a setting and to inquire into the ethnographic character of the setting. By participating, the researcher gets the feel of what it is like to be an actor in the social situation and is able to comprehend and understand behaviour” (p.63). The role of participant as observer enabled data to be collected through engagement in the daily life of the study participants obtaining an in-depth account of the social interactions that took place in a natural setting (Becker, 1958, p.652, cited in McKernan, 1996, p.60). In the role of participant as observer, McNeill and Chapman (2005, p.96) state researchers have acknowledged that early behaviour is likely to be artificial due to the researcher's presence. Nevertheless, McNeill and Chapman (2005, p.96) hope over the time span of the research their presence will be taken for granted and subjects' behaviour will return to normal. For this reason, students were informed of the researcher's intention and made aware that some would be interviewed and that their work might be used to support the research.

The second phase was concerned with the notion of usability testing³¹ with design educators, that is user testing the teaching-learning artefacts devised in the previous phase. This involved the researcher assuming the role of an observer³² to capture the learning situation through the design educators' eyes. A debate on how to foster designers' visual practices was enabled through case studies³³ of design educators' integration of the teaching-learning artefacts into their modules, and allowed educators to state what was important to them. Section 7.2.1, p.150 outlines the user testing approach in full.

5.4.4 Data Collection, Analysis and Interpretation Process

Figure 5.2 illustrates the components that were part of the data collection, analysis and interpretation process. This section describes the relationship between these components, to explain the treatment of the data. The research question informed the components involved in the data collection process, the question informed the design framework that guided the teaching-learning artefacts, selection of the co-participants, learning situation and methods used to capture participants' viewpoints. A framework for analysis, which was based on the design framework, led the data analysis and interpretation process and was used to reduce the data collected and draw conclusions on the research question, in the form of descriptive statements portraying the development and fostering of designers' visual practices.

³¹ The term usability has been used broadly and means different things to different people. Dumas and Redish (1999, p.22) acknowledge that there are different ways of conducting a usability test; however, they propose that every usability test should involve five characteristics: (a) the usability of a product is improved, (b) the participants represent real users, (c) the participants do real tasks, (d) the researcher observes and records what participants do and say, and (e) the data is analysed and problems are then diagnosed and redesigned.

³² To encourage a collaborative process the researcher assumed the role of participant as observer, which meant that the design educator led the modules and the learning activity, while the researcher would participate as a tutor if required, i.e. if the tutor felt that they required guidance on the use of the teaching-learning artefacts. However, every effort was made not to influence learning, despite the obvious interest in the proceedings.

³³ It was decided to adopt some aspects of the storytelling case study. Storytelling case studies are narrative stories and descriptive accounts of educational events, projects, programmes, institutions or systems that, after careful analysis, deserve to be told to interested audiences (Bassey, 1999, pp.62-3). This approach to educational case studies would enable a narrative account of how the design educators implemented the teaching-learning artefacts, leading to theoretical insights being captured.

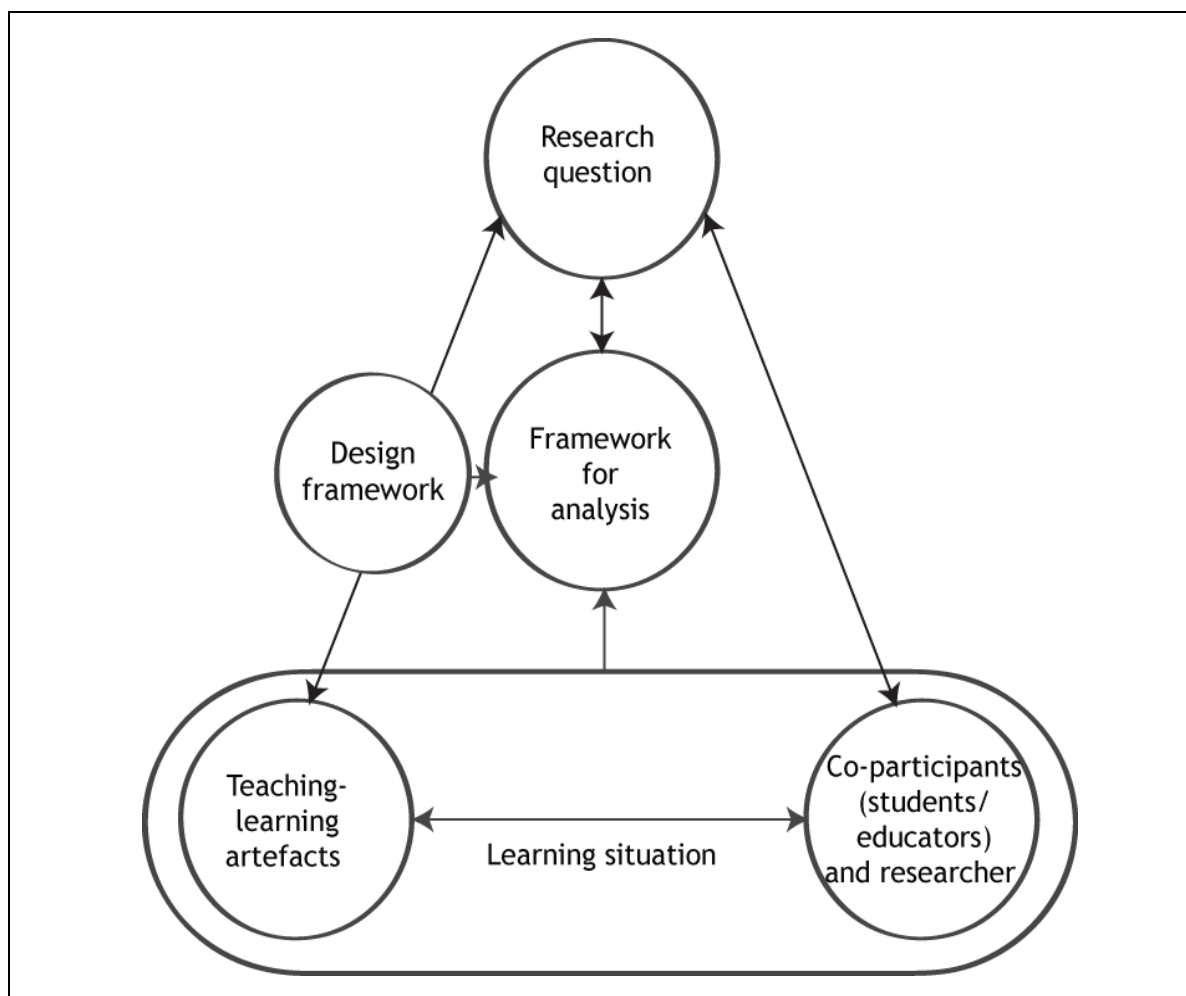


Figure 5.2: Data collection, analysis and interpretation process

Data Collection Process

A full description of the components that were part of the data collection process follows. The design framework in Table 5.1, pp.90-1 informed the nature of the teaching-learning artefacts, as well as the duration and type of learning situation selected. The duration of the learning situation was determined by the key learning attribute in the design framework – reflection. It was recognised through conversations with peers who had developed their own reflective practice approach, that enabling and developing reflection takes time to develop. For this reason, a decision was taken to engage in and observe a learning situation over an academic year. The selection of co-participants was based on the aspects of the design framework that required members to regularly engage with evolving visual literacies and practices. The Multimedia Design programme at Northumbria University was selected as the learning situation on the basis of practicality and because the researcher was known within the School of Design and had an existing relationship of trust. The researcher’s personal contact with tutors from the Multimedia Design degree programme meant they were happy to accommodate the needs of the study and permit engagement in and observation of the learning situation for an academic year.

It was recognised that the type of co-participants selected would assist in generating a response to the research question. As the study aimed to obtain insights into developing and fostering designers' visual practices over an academic year, the following sampling strategy was observed:

- First year students on the Multimedia Design degree were selected as the focus of this study, as they would not have encountered approaches to enable visual development through reflective practices. Therefore the effect on learning could be observed without being influenced by prior teaching.
- As the research was of an iterative nature, regular sampling of a sub-group of co-participants' (students and educators) views was required. However a sub-group of co-participants could only be selected as knowledge of the learning situation increased. This selection was made with the intention of gaining a breadth, depth and diversity that accurately represented the population.

Dialogues on the development and fostering of designers' visual practices were collected during the two research phases. This involved the capture of:

- Design decisions on the design and development of teaching-learning artefacts.
- Verbal descriptions of the richness and complexity of behaviours in the naturalistic setting.
- Co-participants' interactions with the learning situation.

The methods outlined below produced a data collection³⁴ process that captured all of the above-mentioned aspects. The data collection methods in the first phase (design experiments) also included the capture of students' profiles and discovery of how learning occurred when employing artefacts. The multiple types of data collected in the first research phased comprised of:

- Audio recording "produces a multiplicity of participants' perspectives within a natural setting" (McKernan, 1996, p.106). This method of data collection captured the dialogues around the teaching-learning artefacts, through recording each studio session and interviews with co-participants. During the design experiments, this method enabled co-participants to have a voice, as well as facilitating reflection after each studio session.
- A reflective diary documents personal observations, thoughts, feelings, attitudes, perceptions and reflections, providing a mood dimension to human action (McKernan, 1996, p.84). A reflective diary in the design experiments captured the used of and design decisions made when designing the teaching-learning artefacts. This enabled a narrative account of the situation, documenting studio session plans, what happened in the studio session, reflection on the teaching-learning artefacts and co-participants' voices, feelings, attitudes and perceptions.

³⁴ Appendixes 2 and 3 present key exemplar of the data gathered during both research phases.

- Analytic memos are written documents where a researcher analyses the research to help in the development of ideas and understanding of topic setting, they facilitate reflection (Maxwell, 2005, p.12). During the design experiments, analytic memos were systematically conducted weekly to facilitate reflection on the research question and methods.
- Student artefacts were obtained from each project to enable dialogue during semi-structured interviews. In addition, content analysis³⁵ was performed on examples of students' work for two reasons; to gain supporting evidence of their use of the teaching-learning artefacts and achieve insights into how they learnt.
- Observational field notes provided a description of the elements in the naturalistic setting (Patton, 2002, p.302). These recorded how many students were in the studio session and the time of key events were noted, to direct reflection after the studio session. Semi-structured interviews are a method of data collection where the interviewer has a list of areas to be addressed, but is free to probe areas of interest as they arise (Denscombe, 2007, p.176). Semi-structured interviews were conducted with co-participants (students and educators) after each project to capture co-participants' profiles, use of teaching-learning artefacts and feelings about the project.
- Photography was used to document students' use of the teaching-learning artefacts.
- Video recording involved "naturalistic observation in the natural setting of the behaviour" (McKernan, 1996, p.59). Students' final presentations were video recorded to aid the recall of the learning situation and capture verbal dialogue.

The following methods of data collection in the second research phase captured educators' profiles and engagement with the learning situation:

- Descriptive observations are basic descriptions of the setting, the people and the events that have taken place (Robson, 2002, p.320). Using Spradley's³⁶ (1980, cited in Robson, 2002, p.320) nine dimensions of descriptive observations, each studio session observation involved recording the time, date, stage in the design process, number of students and

³⁵ Content analysis entails using systematic, replicable techniques to compress texts into fewer content categories based on explicit rules of coding (Krippendorff, 2004, p.3; Weber, 1990). It is a useful technique to enable discovery and description of the focus of individuals, groups, institutions, or social attention (Weber, 1990, p.9). Robson states the limitation (2002, p.358) that is relevant to this research: it is very difficult to assess causal relationships. Content analysis raises the question of whether the documents are the causes of the researched social phenomena, or merely related to them. Appendix 2.1, p.311 describes the content analysis process.

³⁶ Spradley's (1980) nine dimensions of descriptive observations are: "1.SPACE – layout of the physical setting; rooms, outdoor spaces, etc., 2.ACTORs – the names and relevant details of the people involved, 3.ACTIVITIES – the various activities of the actors, 4.OBJECTS – physical elements: furniture etc., 5.ACTS – specific individual actions, 6.EVENTS – particular occasions, e.g. meetings 7.TIME – the sequence of events, 8.GOALS – what actors are attempting to accomplish, 9.FEELINGS – emotions in particular contexts" (Robson, 2002, p.320).

teaching-learning artefacts used, description of how they were used and details of students' interactions with educators.

- Post studio reflection sessions took place with the educators using Rolfe's *et al.*, (2001) reflexive practice model (what worked well?' what was so-so?, what did not work? and what now?) to structure the dialogues and assist descriptive observations.
- Reflective diaries were kept during the course of the case studies to record the interactions that took place between participants, the teaching-learning artefacts and the learning situation in order to direct future observations and formation of questions to pose to the educators.
- Semi-structured interviews with the educators were conducted before and after the case study. The semi-structured interviews conducted before the case study involved the discussion of educator's teaching style, communication of the objectives of the research phase, selection of the teaching-learning artefacts they wished to use in their module. Those conducted after the case study was completed, involved capturing their experience and use of the teaching-learning artefacts.
- Audio recordings were taken during studio observations, dialogue and interviews with the educators to provide an accurate account of the learning situation.
- Grasha-Riechmann's Teaching Styles evaluation³⁷ (Grasha, 1996; Grasha, 2002) was completed by the educators to gain an insight into their approach to teaching.
- A knowledge elicitation exercise³⁸ was completed by each educator to gain an insight into their teaching practice, review the use of the teaching-learning artefacts in the module and consider how the teaching-learning artefacts that they chose to implement influenced their teaching practice (*see* Appendix 3.1.3, p.382 for details of this exercise).
- Students' artefacts were obtained from each case study to gain an insight into students' learning under the direction of the educator, and aid description of the use of the teaching-learning artefacts when reporting the research.

Data Analysis and Interpretation Process

Miles and Huberman's (1994, pp.11-2) following three activities of qualitative data analysis were adopted in this study to reduce and draw conclusions from the data collection process:

- Data reduction is carried out continually throughout the analysis, at the early stages, editing, segmenting and summarising. During the middle stages, data reduction happens

³⁷ Appendixes 3.1.1 (p.379) and 3.1.2 (p.381) describe Grasha-Riechmann's Teaching Styles Evaluation.

³⁸ Knowledge elicitation exercise activity involves "the explication of unarticulated latent knowledge that the knowledge owner might not even be fully aware of... Elicitation requires that people are conscious of, and successfully express their knowledge and that their expressions are adequately represented and interpreted" (Jetter, 2006, p.65).

through coding³⁹ and memoing⁴⁰ and associated activity such as finding themes, clusters and patterns, then at the later stage, conceptualising and explaining develops to produce an abstract concept.

- Data displays (matrices, graphs, charts and networks) organise, compress and assemble information, and are used at all stages of analysis. They demonstrate what stage the analysis has reached, and they are the basis for further analysis.
- Drawing and verifying conclusions uses the reducing and displaying of data to draw conclusions. Although conclusions may be notes early in the analysis, they may be vague and difficult to isolate into concepts until all the data is collected and analysed, when conclusions can drawn and displayed; they are then verified. Miles and Huberman (1994, pp.245-263) have described thirteen tactics for generating meaning from a particular configuration of qualitative data in a display. This is a process of testing or confirming meaning which avoids bias and assures the quality of the conclusion (Miles and Huberman, 1994, p.245).

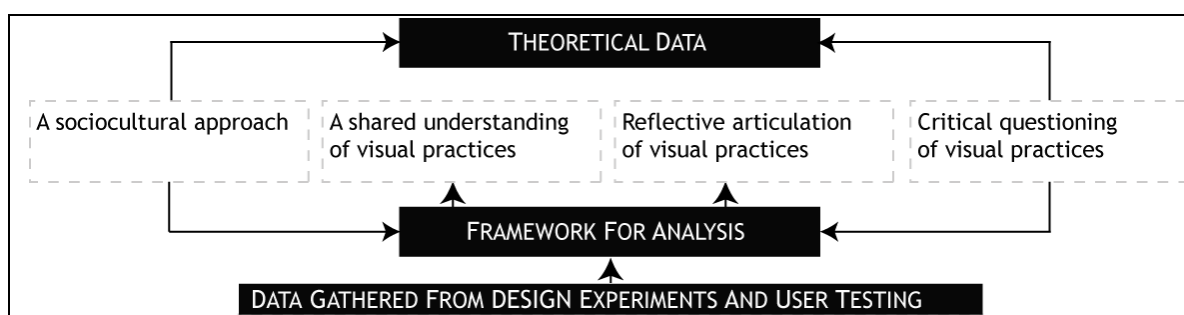


Figure 5.3: Framework for analysis

A description of the data analysis and interpretation process through each of Miles and Huberman's (1994) three activities of qualitative data analysis which was observed in the study follows below.

In the study, data reduction involved the selection, descriptive and pattern coding and management of the data before, during and after they were collected:

³⁹ "Coding is analysis" (Miles and Huberman, 1994, p.57) when coding field notes the data become synthesised. Miles and Huberman (1994) describe two types: descriptive, which is concrete, with little interpretation needed at the start of the coding process, where the researcher immerses themselves in the data, and then interpretive codes draw inference from the data on reflection, looking for patterns. Miles and Huberman (1994) describe pattern codes as "explanatory or inferential codes, ones that identify an emergent theme, configuration, or explanation... Pattern coding is a way of grouping those summaries into a smaller number of set, themes or construct" (p.67). Descriptive codes are the basis of interpretive codes, and the whole process enables a more advance level of abstraction.

⁴⁰ Memos begin at the start of the analysis, along with coding (Miles and Huberman, 1994, p.72). Miles and Huberman (1994, p.72) cite Glaser's (1978) defined of memos: "The theorising write-up of ideas about codes and their relationships as they strike the analyst while coding...can be a sentence, a paragraph or a few pages... it exhausts the analyst's momentary ideation based on data with perhaps a little conceptual elaboration" (pp.83-4).

- Before the data were collected, data reduction decisions involved sampling approach, selection of learning situation and cases, a framework for analysis and provisional codes. In particular, the framework for analysis was drawn from the design framework in Table 5.1, pp.90-1 that guided the investigation into the research phenomena during the research phases indicated above. The design framework outlined learning attributes and processes used to help foster visual practices, which would need to be reviewed following the fieldwork. Therefore the framework for analysis illustrated in Figure 5.3 has four components that were identified as being part of developing and fostering designers' visual practices, a sociocultural approach, a shared understanding, reflective articulation and critical questioning. The intent of the analysis was to look for and review each of the associated learning attributes and processes used to help foster visual practices, under each component outlined in design framework. The process of looking for was informed through provisional descriptive codes. Prior to the data analysis provisional descriptive codes were constructed to look for where each component of the framework had occurred and identify the value brought to co-participants (students and educators) in relation to fostering designers' visual practices during the research phase. Therefore, each individual code outlined sub-codes to capture the value from three viewpoints: students', educators' and the researcher's. Whereas, the process of reviewing, was informed by provisional pattern codes. Prior to the data analysis, the provisional descriptive codes were constructed to review the learning attributes and processes of each component, as outlined in the design framework. For every code defined, an impeding code was created to review counter arguments to learning attributes and processes. Both provisional codes were used to guide and focus the analysis process.
- During the data collection, data reduction decisions informed the process of collecting the data. The design framework directed the design and testing of the teaching-learning artefacts during both research phases. The data collection process informed the capture of design decisions and dialogues surrounding these teaching-learning artefacts.
- Further data reduction after the data were collected occurred through full transcriptions of interviews, and analysis using the qualitative analysis software NVivo[®] to organise the data for descriptive and pattern coding. The data gained from both research phases was organised in a similar way for descriptive coding. For each student project in the design experiments, and each case in the user testing, data gained was mapped from different viewpoints (students', educators' and the researcher's) to each teaching-learning artefact. In the first instance, this contributed to the narrative account of the learning situation presented in Chapters 6 and 7. In the second instance, using the provisional descriptive and pattern codes enabled the data to be coded line-by-line, as they had been converted into a manageable form. During the coding process, memos were made when possible pattern

codes were observed which led to updating the provisional pattern codes. This coding process was assessed through a process of data display described below.

Data displayed in the form of matrices and cognitive maps occurred throughout the coding process and were integral to the data analysis and interpretation process. Patterns were displayed in a matrix to enable an overview of where they had occurred in each case. Based on the matrix created, cognitive mapping explored the relationship between the patterns. The process of mapping enabled new patterns to be observed and provided a platform from which to draw initial propositions in the form of descriptive statements portraying the development and fostering of designers' visual practices.

The process of drawing and verifying conclusions was informed by Miles and Huberman's (1994, pp.245-6) tactic of generating meaning by noting patterns and themes. This involved the reduction and combination of pattern codes identify major and minor patterns –identification of commonality amongst the data collected. The identified patterns were formed into propositions, both of which needed to be verified. This involved a formal review with design educators, using the cognitive map as an enabler to review: where the identified patterns had occurred in each case; rename the identified patterns; the descriptive statements in relation to the research question. During this process, the descriptive statements portraying the development and fostering of designers' visual practices from the data, were categorised under two categories: confident and suggestive descriptions of developing and fostering designers' visual practices. Therefore when presenting the analytical findings of this study in Chapter 8, this categorisation allows the reader to see where the contributions to knowledge made were based on confident descriptions and those that could be further researched (suggestive descriptions).

5.4.5 Validation

This section presents a discussion on the practices that were implemented to ensure the results of this study were valid. Holloway (1997) has defined validity as:

“The scientific concept of the everyday notion of truth. All research must show that it has truth value[...] in qualitative research it is the extent to which the findings of the study are true and accurate. Here validity is the extent to which the researcher's finding actually reflect the purpose of the study and represented reality.” (p.159)

Trustworthiness of qualitative research occurs when a study reflects reality and the participants' ideas (Holloway, 1997, p.160). Rossman and Rallis (2003, p.63) outlined two standard practices for trustworthiness: (a) acceptable and competent (credible, systematic and rigorous, useful) and, (b) ethically conducted. These two standards for practice were observed in this study to ensure that the results produced are trustworthy.

The first element of acceptable and competent is credibility. A credible study must, “render an account of participants’ worldviews as honestly and fully as possible. This rendition of what has been learned however is also an interpretation – the researcher’s” (Rossman and Rallis, 2003, pp.65-6). Hence a credible study with sound conclusions must demonstrate how the research was derived from participants’ views and what was observed in the situation. To ensure the research produced in this study was credible, the following strategies were employed:

- Triangulation of sources, methods, and iterations: To represent reality in this study, data was collected from multiple sources (co-participants and the researcher’s observations), and involved a variety of methods (interviews, observations and reflective diaries). Data triangulation was further extended through repetition of analyses across iterative cycles; as this is a key aspect of design based research (Design-Based Research Collective, 2003, p.7).
- Long-term involvement in the learning situation: To present an accurate account of the phenomena being studied, regular and repeated observations and interactions occurred *in situ* over a year of academic study.
- Member checking: The results of the observations of using the teaching-learning artefacts were shared with the co-participants, to understand if they held the same views. These involved observations made, being checked with co-participants during and after studio sessions, as well as during semi-structured interviews.
- Peer debriefing: The process of data analysis, the analysis itself and conclusions were shared with peers. Peer review enabled the result of this study to be shared with colleagues for comment at presentation seminars and conferences, to understand if they had arrived at a similar interpretation.

Systematic and rigorous is the second element of the first practice for trustworthiness. This element refers to “judging whether replication would yield the same result” (Rossman and Rallis, 2003, p.67). This involved questioning whether others are able to understand the logic and assumptions of the study, also if the methodological reasoning is transparent, in order that a reader can understand the interpretation process of the data. Therefore the course of action the researcher followed should be documented to reveal the decision making process (Rossman and Rallis, 2003, pp.66-7). Having considered each of these factors, the following strategies were employed to ensure this qualitative study was conducted rigorously:

- Audit trail: Design-based research involved transferring what had been learnt *in situ* through the process of designing teaching-learning artefacts into theoretical knowledge. Hence, this study provided an audit trail through a detailed description of the process of designing and implementing the teaching-learning artefacts (*see* Chapters 6 and 7) and the

research design, data collection, analysis and interpretation, process in order that the reader can follow the decision-making process.

- Researcher's role: The researcher's position is made clear, and acknowledgments of bias have been fully described during the data collection, analysis and interpretation process.

During the research project these strategies to ensure rigor involved keeping a research diary to document the researcher's roles and process of gathering, analysing and interpreting the data in order that the audit trail and these roles are revealed in the thesis.

Useful is the final element of the first practice for trustworthiness. This element involves ensuring what is learnt from one study is useful in other settings (Rossman and Rallis, 2003, p.68).

Usefulness is a central goal of design-based research, as Barab and Squire (2004) argued that usefulness should "directly impact practice while advancing theory that will be of use to others" (p.9). Rossman and Rallis (2003, p.68) contend that establishing the usefulness of a study involves providing descriptions of context, theoretical and methodological orientations and an explanation of what has been learnt. Hence, the usefulness of this study was achieved through:

- Thick description: A thick description of the learning situation, the teaching-learning artefacts (*see* Chapters 6 and 7) and knowledge rendered, is provided in the form of a design narrative⁴¹. Hoadley (2002) contended that a design narrative is important to design-based research, unlike a positive paradigm, where the research can be repeated, the researcher's "interventions are culturally embodied" (p.2) and there is no control over the variables in the learning situation. Therefore as the setting cannot be controlled, it may not be replicable. This means the focus shifts to "identifying which factors are most relevant to this particular situation and to communicating results in a manner that appropriately contextualizes them" (p.2) – the design narrative.
- Useable knowledge: Through iterative cycles of design and testing teaching-learning artefacts, knowledge is rendered useable⁴² as it is a synergy between theory and practice, and inline with co-participants' beliefs and values.

All of the above mentioned strategies demonstrated how this study conformed to standard practice of acceptable and competent research. The second standard of practice for trustworthiness described

⁴¹ Bell, Hoadley and Linn (2004, cited in Juuti and Lavonen, 2006) "introduces design narratives as technique to communicate with other scholars in the field. Design narrative describes the features of the design-based research: the process (who to whom, context, resources, how)...artefact (goals, properties and changes during the process)...and rendered knowledge that may consist of learning outcomes and other aspect of learning in designed settings which helped practitioners act more intelligently, i.e. improve teaching" (p.64).

⁴² Lagemann (2002, [online]) draws the term usable knowledge from Lindblom and Cohen (1979). She describes this type of research in education as taking "into account all of the conditions that exist in the setting or case under study, thus helping to ensure that the limit to its generalizability[sic] will be clear."

by Rossman and Rallis (2003, p.70), which was considered in relation to this study was – ethical conduct. They argue that the two standard practices for trustworthiness are interrelated – as an “unethical study is not a trustworthy study” (p.65). This standard for practice is based on a code of ethics and moral principles, often set by the institution in which the research was conducted. The researcher adhered to ethical guidance of the institution to respect the rights of the participants. Therefore the following ethical practices were observed during this study:

- Informed consent: All students and staff were fully informed of the purpose of the study, method and intended use of the research, and consented before the research commenced.
- Voluntary participation: As the researcher adopted the role of primary tutor in the first phase of research (design experiments), the co-participants had to take part in the research to complete their course of learning. This ethical dilemma was considered and the researcher made the co-participants aware that consent would be gained before any data was collected and used in the research. Prior to interview co-participants were asked to consent to their involvement in the study and were informed that they were able to withdraw at any time, in which case their contributions would be removed from the sample.
- Anonymity: All participants remained anonymous in all aspects of the research study, i.e. no actual name or any identifying features are presented in the study.
- Confidentiality: During interviews participants were informed what was said would be confidential; however they were made aware their words could be directly quoted in a written report, although their identity would be protected.

As well as the research adhering to the institution’s ethical guidelines; a study-specific standard for ethical practices in an education context was required which involved:

- Power relationship: In each research phase outlined above, a different type of power relationship existed between the researcher and researched. Where this was present there has been an open and honest account as to where, when, and how this occurred, how the issues of power were dealt with, and the effect on the validity of the study stated.
- Reporting: When the research was reported, objectivity and integrity were maintained by providing an honest and truthful account of research events by reporting on methods and techniques used, findings gathered and conclusions made. Also integrity was maintained through reporting on the limitations of the study and the validity of data gathered.

5.5 Summary and Conclusions

This chapter has argued that designers' visual development occurred through a sociocultural approach. That is, everyone has his or her own visual practices, which they form through social and cultural means. It follows that designers' visual practices are constructed *in situ* through facilitating social interactions that enable individuals to reflect on their visual practices to develop approaches, which are then used to engage and develop visual contexts.

The understanding of development presented at the start of this chapter, led to the identification of the following three characteristics that are opportunities and processes to explore the fostering of visual practices through a sociocultural approach in design pedagogy:

- A shared understanding of visual practices: This characteristic outlined processes that provide design educators with an opportunity to develop a shared understanding of the visual practices that occur in a community, to aid students to observe, reflect and improve on how they apply their visual knowledge and skills.
- Reflective articulation of visual practices: This characteristic facilitated self-reflection on visual practices, so students become more aware and better able to communicate and gain feedback which will help them engage in visual contexts.
- Critical questioning of visual practices: This characteristic outlined processes to facilitate students to question critically what and how they see. By enabling this type of questioning, students can become active seers who are able to perceive hidden relationships and engage in the constantly changing world around them.

A sociocultural understanding of visual development informed the research design process required to explore the research phenomena presented in Figure 5.1, p.100. The research design process presented a means to record learning *in situ* and capture the social interactions, then foster the development of designers' visual practices. This process considered the qualitative research approach, which directs the study. The data collection, analysis and interpretation process provided a full account of how the data were treated. Finally, the practices observed for ensuring validity were fully described.

The next two chapters of this study present the product of the research design process.

Chapter Six: Design Experiments - Fostering Designers' Visual Practices

6.1 Introduction

The previous chapter outlined a sociocultural approach to understanding and researching the development of designers' visual practices; this chapter builds on that foundation to explore how to foster the visual practices of design students.

As described in Section 5.4.3, p.91, the employment of a design experiment method centres around the design and recording of dialogues and decisions that surround teaching-learning artefacts, leading to the exploration of how to foster designers' visual practices. This chapter presents a design narrative, which describes the design and implementation of teaching-learning artefacts and the dialogues that occurred over the course of three student projects that used these artefacts. Each student project refers to a single module of undergraduate study, where the researcher was the primary tutor. Each module had a different assignment and output; the first project was based around the production of print-based design solutions, the second web-based and the third interface-based.

The design decisions and dialogues surrounding the artefacts were captured and analysed, contributing to the research findings presented in Chapter 8.

6.2 Design Experiment Methodology: Design Research Approach, Learning Situation, Co-participants and Power Relationships

6.2.1 Design Research Approach

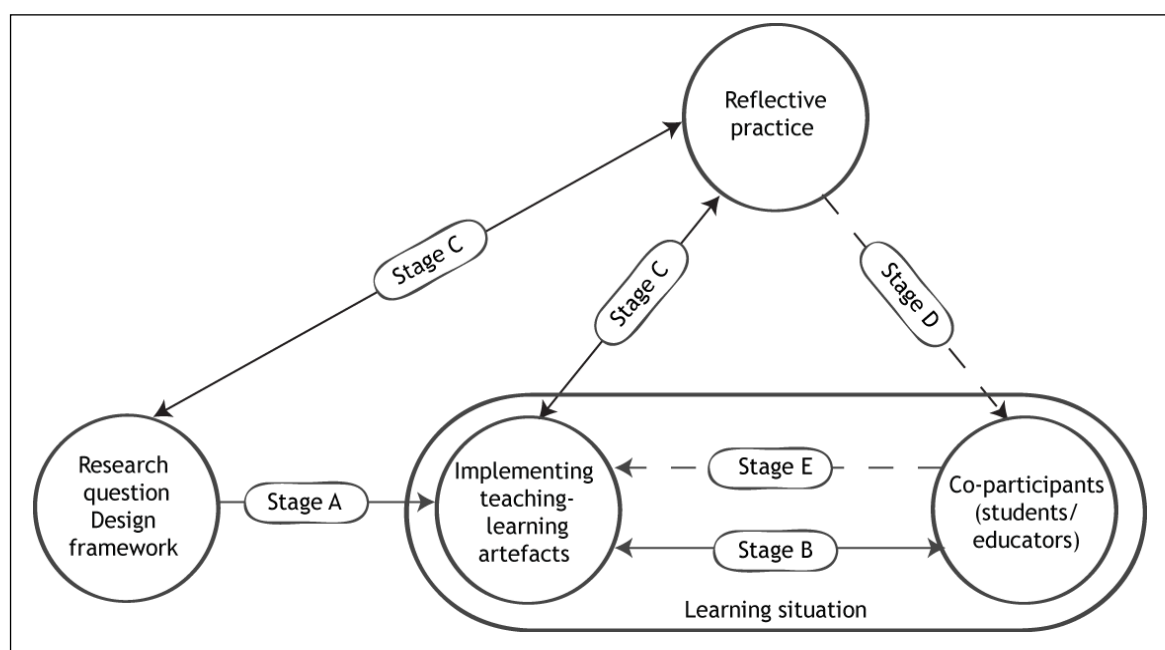


Figure 6.1: Design approach observed during the design experiments

Figure 6.1 outlines the approach to designing and implementing the teaching-learning artefacts in the learning situation. This approach had two underlying features – reflective and collaborative. The first feature was adapted from Schön's (1987, pp.114-6) ladder of reflection for a reflective practitioner. Schön's ladder of reflection is set out below:

4. Reflection on reflection on description of designing.
3. Reflection on description of designing.
2. Description of designing.
1. Designing.

As outlined in Section 3.3.1, p.40 the practitioner begins at the designing stage, moving up and down the ladder when issues arise in the situation and/or dialogue between coach and the student promotes different types of reflective practice. The dialogue in this study is between the researcher (viewed as the student) and the co-participants (who are viewed as the coach). As the researcher moves up the ladder of reflection, there is a movement from an action (i.e. implementing the teaching-learning artefacts) to reflection on that action. As the researcher moves down the ladder there is a shift from reflection, to action based on that reflection (achieved during the design experiments through the use of reflective diaries). Although solo reflection is important, more

significant reflections were triggered by the actions and criticism of co-participants (students and supporting module tutors). For example, when a teaching-learning artefact was not effective, feedback was gained from the co-participants, and reflection took place at the third and fourth rungs of Schön's (1987) ladder of reflection, in addition to referring back to the research question and design framework. Hence there was a sequence of iterative actions and reflections in the process of designing and implementing the teaching-learning artefacts.

The next underlying feature was a collaborative approach to designing and implementing the teaching-learning artefacts, which was necessary for two reasons. The first reason being that the design was completed in collaboration with co-participants, as this is a key aim of design-based research (McInerney and Etten, 2005, p.131). A collaborative approach in the second instance was essential as a sociocultural approach requires an understanding of the present stage of learning, as development occurs *in situ* (Street, 2001, p.221).

These two underlying features led to stages A – E, which in turn formed the design research approach illustrated in Figure 6.1. A description of these stages follows to demonstrate how stages A-E of the design experiments were conducted:

- Stage A – Planning, designing and creating a prototype teaching-learning artefact: The design framework (based upon the literature that related to the research question) presented in Table 5.1, pp.90-1 guided this stage. As more knowledge emerged from the learning situation, these artefacts took into account students' existing knowledge and skills.
- Stage B – Implementing the teaching-learning artefacts in the learning situation: Where possible, co-participants were encouraged to provide feedback on the use and value of the artefacts during this stage.
- Stage C – Observing and reflecting on teaching-learning artefacts: This involved evaluating the learning interventions in reference to fostering visual practices. If the teaching-learning artefact was not successful a higher rung of reflection occurred. This involved first analysing and defining the perceived problem, then consider what questions to ask the co-participants to further understand the problem and direct the redesign of the teaching-learning artefact.
- Stage D – Discussing the problems that have been identified with co-participants: Using the artefact to prompt dialogue, this stage requested feedback from co-participants on the perceived problem.
- Stage E – Redesigning the teaching-learning artefacts: Based on the feedback from the co-participants, the teaching-learning artefacts were redesigned where required and then tested. Where necessary, the revised teaching-learning artefacts went through a further iteration of all stages of the design research approach.

These stages offered a flexible design research approach, which allowed for different teaching-learning artefacts to be tested simultaneously.

6.2.2 Learning Situation

The learning situation was within a Multimedia Design degree, as this study required members to regularly engage with evolving visual literacies and practices. The design experiment was situated within the first year of study in the Multimedia Design degree at Northumbria University. The study focused on this particular set of students, as they had not encountered reflective practice before; reflection is the key learning attribute involved in the development of a sociocultural approach, as described in Table 5.1, pp.90-1 in the design framework.

The history behind the Multimedia Design degree at Northumbria University was described based on an interview conducted with the course leader before the study began. The general intention of this taught programme, was to produce graduates who were open to the use of a range of both digital and print media. It was explained that the primary emphasis of the course was to create strong conceptual thinkers with good graphical skills in the first instance, before outlining the necessary production skills required to produce a well-rounded designer.

Most of the students in the first year had little or no previous knowledge of multimedia design. By the end of the first year, tutors expected that they would have developed their fundamental skills and knowledge of processes. However, there was little expectation on the students to understand their own practices at this level. The core design process is introduced in the first year through the Design Document: an approach devised to present ideas using sketchbooks or similar, in order to develop a final product and to explain how a design solution works. Many technical skills must be taught in the first year in order to help students to realise their ideas. The course leader explained that students encounter a steep curve when learning the Design Document process and technical skills. As they move through the second year they are given more opportunities to develop their graphical and multimedia skills, and by the third year students are expected to direct their own learning in areas of personal interest.

6.2.3 Subgroup of Co-participants

In line with the sampling strategy outlined in Section 5.4.4, p.94, as knowledge of the learning situation increased a subgroup of first year Multimedia Design students were invited to participate in the research in order to track their development over the course of the three projects. This invitation was made just before the students had finished their first project. Nearing the end of the

first project as described in Section 6.3.1, p.116, three developmental stages of visual practice had been observed in the students' work.

Before this research phase began it was apparent that being able to reflect was the key learning attribute in the development of visual practices, as outlined in Section 5.2.3, p.80: that designers' visual practices are constructed *in situ* through facilitating social interactions, and that such interactions enable individuals to reflect on their visual practices to develop approaches which are then used to engage and develop visual contexts. Furthermore, each of the characteristics presented in Section 5.3, p.82 centred around being able to reflect on visual practices through social interactions. The idea behind the identification of developmental stages in visual practices was to observe reflective approaches to improve practices. In theory, if students were more able to reflect they would be more able to improve and develop their own visual practices, finding new ways to engage in visual contexts. The identified developmental stages of visual practices observed during the first project were:

1. Students showed little or no reflection in/on their work or themselves.
2. Students reflected on their work.
3. Students reflected in/on their work and themselves.

In order to sample the depth and breadth of the identified development stages, four students from each development stage were asked to partake in interviews after each project. A total of twelve students formed a subgroup of co-participants, enabling development to be tracked and feedback on the effectiveness of the teaching-learning approaches to be gained.

The supporting module tutor for each student project assisted with design critiques and assessments, and was allocated on the basis of them having knowledge of the module, as well as their availability.

6.2.4 Power Relationships

During this study it was acknowledged that an unequal power relationship existed between the researcher and the students. As students generally learn core production skills within their first year, teaching-learning artefacts devised by the researcher involved them in more reflective and thinking exercises than would usually be expected of them. From discussions with the Multimedia Design teaching team, it was understood that value gained from reflection on their visual practices may not be apparent straight away; hence some of the teaching-learning artefacts devised became part of their final mark in order to ensure students' engagement from the outset. At the start of the project this may have impacted their working approach, as they may have engaged with the teaching-learning artefact not to improve their knowledge and skills, but to achieve a desired mark.

However, the researcher was not the only marker; the supporting module tutor had an equal share in deciding the mark each student received. Although it was intended to be a collaborative process to designing the teaching-learning artefacts it may be that at its inception, the students were more led by the researcher's instructions.

The researcher was confident that teaching-learning artefacts devised to aid reflection on visual practices would be beneficial. Prior to this study the researcher had observed changes in designers who had engaged in reflective practice, which had resulted in significant improvements to how they approached a design problem. This led to the researcher being confident that if students became aware of their visual practices, their application and development of approaches to engage with visual contexts would improve. Consequently, as the values of the artefacts were not immediately apparent to students practice, at the outset of this study the researcher and the supporting module tutor were promoting the idea of the teaching-learning artefacts to the students – for example, enabling students to communicate their visual practices through self-assessment (reflective journal) first involves identifying what to record and reflect on, and then engaging in a conversation around their reflective journal. Students could only observe patterns in their reflective journals after they had carried out a considerable amount of project work, and it was only then that they started to understand and value reflection on their visual practices. Therefore at the start, the power relationship involved the researcher instructing students on what to do. The nature of the teaching-learning artefacts also affected the researcher's teaching style: although unaware of this issue, the researcher was adopting an over-structured technique that was not beneficial to the students. However by the third project, the researcher had relaxed the teaching style, the workload was reduced and students were encouraged to incorporate the teaching-learning artefacts into their project work in their own way.

A different kind of power relationship existed between the researcher and supporting module tutors. The first and second projects' supporting module tutors from the Multimedia Design teaching team were well known to the researcher before this study began. In effect, this prior relationship could have influenced the feedback gained from these individuals. Nevertheless, they acted as mentors and provided extremely useful insights into current teaching practices and the effectiveness of the teaching-learning artefacts devised. The third supporting module tutor was new to the course and unknown to the researcher before this study. Therefore this power relationship was different, as a relationship of trust had to be built up and a clear communication of intent achieved.

Issues of power were dealt with implicitly in the research context, mainly through a negotiation process. Reflection on, and changes to, teaching-learning artefacts and teaching style came from

an ongoing negotiation that necessitated a collaborative environment. To achieve this the researcher recognised the need to question the way communication took place with others in order to foster a productive atmosphere as well as an awareness that expectations would change. For example, at the beginning of the study students were made aware that the researcher would listen to them, and if teaching-learning artefacts did not fit with their learning they would be developed in consultation. In addition, in order to encourage constructive feedback, when the subgroup of students was interviewed after each project they were made aware that the researcher was acting as an interviewer and not as their tutor. The issues of power were dealt with similarly with the supporting module tutors; they were briefed beforehand, understood the intent of the study and were made aware that the researcher was open to receiving feedback.

6.3 Design Experiments

A visual overview of the teaching-learning artefacts designed and implemented to foster students' visual practices during each student project is presented in Figure 6.2. In particular this figure shows the progression of the Learning Log and Sherlock Holmes Personas over the course of the three projects. As more insights into the fostering of visual practices were gained, these artefacts were developed and became more relevant to the learning situation. Also as the research progressed, the teaching-learning artefacts facilitated different types of methods or conversations, which enabled students to reflect on their visual practices with themselves and others. To be precise, in the first project the Learning Log (a reflective journal) encouraged solo reflection on visual actions, and the Critical Viewing activity introduced students to the terms looking and seeing, providing them with a language to reflect on their visual practices. By the third project, de Bono's Six Thinking Hats and the second version of the Sherlock Holmes Personas enabled students to reflect on their visual practices with others. In addition the Self-Evaluation Activity encouraged students to reflect back and analyse their visual actions over the course of two projects, which enabled them to see where they needed to improve their visual practices. Full descriptions of the teaching-learning artefacts designed and implemented during each student project are located in Appendix 2.2, p.313. The schedules of when these were implemented are located in Appendix 2.3, p.342.

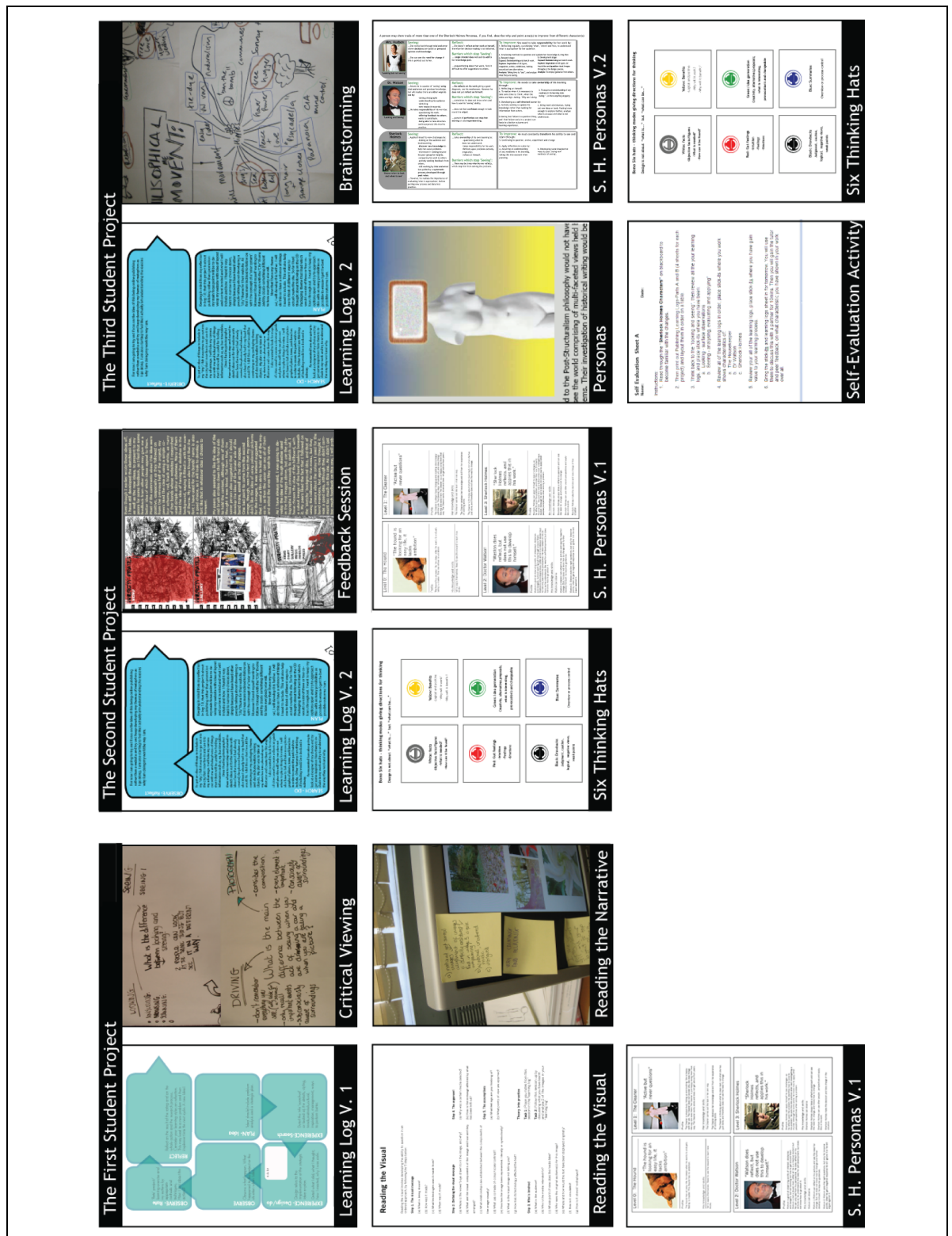


Figure 6.2: Teaching-learning artefacts designed and implemented during each student project

The three student projects presented in this section form a design narrative of the teaching-learning artefacts implemented in the learning situation. As described in Section 5.4.5, p.103 a design narrative selects the most relevant factors and communicates the result in a manner that

contextualizes them (Hoadley, 2002, p.2). The factors most relevant to the student projects are a project description; description of the design and implementation of teaching-learning artefacts in the learning situation; and a content analysis. The latter was performed on the student artefacts (Learning Log) obtained from the subgroup of twelve co-participants to evaluate the use of the teaching-learning artefacts in relation to fostering designers' visual practices. It is important to highlight, when presenting the design narrative, that all of the figures used to support the descriptions of each student project were obtained from the subgroup of co-participants (i.e. twelve students from the first year Multimedia Design degree).

6.3.1 The First Student Project

A Project Description

This project ran over four weeks, with forty-five first year Multimedia Design students split into two groups (A and B) receiving 1.5 hours of contact three times a week. This project was conducted during semester one 2006/2007, and was incorporated into a double module on Publishing Design which formed a sixth of the year's overall marks. The first part of the module was intended to help students develop a general understanding of desktop publishing for print media (*see* Appendix 2.4.1, p.345 for the project brief), while the second part (utilised in the second student project presented in Section 6.3.2) required students to produce online published material. The supporting module tutor assisted with tutorial sessions and assessment, and provided an additional perspective as an experienced lecturer with in-depth knowledge of the course.

A Description of the Design and Implementation of Teaching-Learning Artefacts in the Learning Situation

From discussions with experts in reflective practice prior to this study, it was understood that successful reflective practice takes a long time to develop, as improving self-awareness can be a lengthy process. Therefore, at the outset of this cycle, the Learning Log was implemented to provide more opportunities to observe development of reflective practices in relation to visual practices. The Learning Log template students were asked to complete on a weekly basis is found in Appendix 2.2.1, p.313. When this approach was introduced, the students were informed that engagement with the Learning Log would be part of their project mark. At the outset some students were confused about the purpose of the Learning Log, and a number found it too time-consuming. It was recognised that the potential benefits of this approach had not been communicated in a way the students understood.

The following studio sessions implemented teaching-learning artefacts (Critical Viewing – discussing the differences between looking and seeing, Reading the Visual and Reading the Narrative) devised to engage students in group discussions of their visual practices, to develop

critical questioning of what and how they were seeing. During these exercises it became apparent that students benefited from the social interactions with classmates, as this helped them to reflect on their visual actions. The following reflective diary entry, recorded after the Reading the Narrative activity illustrates this point:

Breaking up the groups resulted in more peer involvement and growth of understanding by observing what others had done and how it had worked. When going round the groups I realised that I will have to work on new ways to help them reflect, perhaps because they are not yet designers they need different approaches that they can develop for themselves that help them to compare their work with that of others.

Students were asked to record any teaching-learning artefacts they had engaged with in their Learning Log and upload them weekly to Blackboard® (a university based e-learning portal). At the end of each week, the Learning Logs were reviewed in order to identify any emerging patterns. There were three identifiable patterns: students who did not show evidence of reflection on their work or themselves; students who reflected on their work; and students who reflected on their work and themselves. For the design critique at the end of the module, it was necessary to share these findings with the students, as it was hoped that it would be possible to further engage them in the reflective process. Based on the Learning Log uploaded to Blackboard®, four students who each exhibited signs of one of the observed patterns were selected for further in-depth study.

During this in-depth study, Perkins' (1994) conversations between Dr. Watson and Sherlock Holmes (*see* Section 5.3.3, p.84) were revisited. These conversations describe how visual literacy is applied in action to solve a problem. A direct relationship emerged between students who reflected on their work, and Perkins' description of Dr. Watson's way of seeing. Similarly, there was a strong relationship between Perkins' description of Sherlock Holmes's way of seeing and students who were reflecting on their work and themselves. Therefore, based on the three identifiable patterns above, the initial analysis of student Learning Logs had defined three developmental stages involved in visual practices. Each of the students selected for further investigation assisted in the design of the Sherlock Holmes Personas⁴³ (*see* Figure 6.3 for the first version of the Sherlock Holmes Personas). This teaching-learning artefact conveyed how students were currently reflecting on their work based on these three identified stages. Peers and tutors participating in the final design critique were asked to evaluate which characteristics of the

⁴³ "Personas are archetypal users of an intranet or website that represent the needs of larger groups of users, in terms of their goals and personal characteristics. They act as standins for real users and help guide decisions about functionality and design. Personas identify the user's motivations, expectations and goals responsible for driving online behaviour, and bring users to life by giving them names, personalities and often a photo. Although personas are fictitious, they are based on knowledge of real users. Some form of user research is conducted before they are written to ensure they represent end users rather than the opinion of the person writing the personas" (Calabria, 2004, p.1). The greatest value in using personas is as a basis for sharing communication (Pruitt and Grudin, 2003, p.3), which is of particular importance when working in fields involving visual literacy where communication is implicit.

Sherlock Holmes Personas were evident in students' work, using them as a method of peer and tutor assessment alongside the normal marking system (*see* Appendix 2.2.1, p.321 for full description of use).

<p>Level 0: The Hound</p> <hr/> <div data-bbox="379 479 630 728">  </div> <div data-bbox="639 479 847 658"> <p>“The hound is looking for an easy life, it lacks ambition”</p> </div> <hr/> <p>Profile</p> <p>The hound has an easy life, he sleeps when he wants to and gets fed by his master. This hound has no ambition.</p> <hr/> <p>His knowledge and skills</p> <p>Yet to apply themselves. Need to see the reward to learn new tricks.</p>	<p>Level 1: The Cleaner</p> <hr/> <div data-bbox="938 479 1129 734">  </div> <div data-bbox="1150 479 1382 551"> <p>“Active but never questions”</p> </div> <hr/> <p>Profile</p> <p>The Cleaner is always busy tiding up and dusting. She is happy with her job. The Cleaner does not wonder why she does things the way she does them. The Cleaner is just happy doing them that way. The Cleaner works alone and does not get advice from peers.</p> <hr/> <p>Her knowledge and skills</p> <p>The Cleaner carries out the task in her own way.</p> <p>The Cleaner develops her knowledge and skill from her experience of working alone.</p> <p>The Cleaner is thinking about what to clean next, not what she has just done, and therefore does not see the need to change.</p>
<p>Level 2: Doctor Watson</p> <hr/> <div data-bbox="375 1207 574 1467">  </div> <div data-bbox="598 1207 813 1386"> <p>“Watson does reflect, but does not use this to develop himself.”</p> </div> <hr/> <p>Profile</p> <p>Watson is good at observing points of interest, obstacles and dangers, but not working out how to get around them. Watson is not a stupid man, (after all he is a medical doctor) but he can only see from his perspective. He does reflect on his actions as he understands the need for self-development, but does not know how to go about it.</p> <hr/> <p>His knowledge and skills</p> <p>Watson can observe</p> <p>Watson 1: Watson can reflect on his actions and see the need for change. But, he does not know how to change and further develop himself, he requires guidances.</p> <p>Watson 2: Watson asks the right questions, but only for brownie points, when he get a negative response he will ignore it or he will argue against it.</p>	<p>Level 3: Sherlock Holmes</p> <hr/> <div data-bbox="938 1207 1125 1458">  </div> <div data-bbox="1150 1207 1347 1386"> <p>“Sherlock Holmes reflects, and applies this in his work.”</p> </div> <hr/> <p>Profile</p> <p>Sherlock Holmes can apply himself to new challenges as he reflects upon the problem, he identifies how to solve to his problem. He puts this into practice when next investigating a murder. Although he works alone, he knows how to apply other people's perspectives when solving a problem.</p> <hr/> <p>His knowledge and skills</p> <p>Sherlock Holmes can observe</p> <p>Sherlock Holmes always takes a reflective approach and can see the need for change, and knows how to change.</p> <p>Sherlock Holmes can use other people's perspectives and apply this in his work.</p> <p>Sherlock Holmes make the decision and take charge of the situation.</p>

Figure 6.3: The first version of the Sherlock Holmes Personas

This initial investigation showed that students found it hard to reflect on their visual practices alone, requiring conversations with others to enable reflection to occur. Hence, the first project

facilitated social interactions in order for students to obtain the means to reflect on their visual practices. In doing this they started to develop the ability to communicate and became more critical of their visual practices. Developing a shared understanding of visual practices required further development, as the Sherlock Holmes Personas implemented in this initial investigation encouraged group interaction and guided students towards an understanding of how they might reflect on their practice. However, it was obvious that the Sherlock Holmes Personas would require further development in order to help students make the connection between their reflective abilities and visual practices.

Content Analysis – Evaluating the Use of the Teaching-Learning Artefacts in Relation to Fostering Designers’ Visual Practices

Table 6.1 presents the content analysis⁴⁴ conducted on the Learning Logs of the twelve students from the subgroup of co-participants from the first project. The content analysis coded students’ visual actions to provide insights into how visual practices were fostered during each project. The following context units, presented in Table 6.1, were used to code the students’ artefacts:

- The reflection unit used Brockbank and McGill’s (1998, p.81) five dimensions of reflective learning (*see* Section 3.3.1) as a schema to analyse the dimension students had engaged in when reflecting and developing their visual practices. A sixth dimension: (After Action – reflexivity on visual practices) was added into this schema, as the overarching purpose of the reflective process in this study was concerned with enabling design students to reflect upon, see the need for change and then develop their own visual approaches to engagement in a visual context.
- Evidence obtained from the learning logs during the four-week project from students (ID 1-12) was coded.
- Teaching-learning artefact units (Artefacts) were coded when they had aided reflection on (and development to) visual practices, with a summary of the condition of visual actions added to contextualise the code. The teaching-learning artefacts coded were: Learning Log – LL, Critical Viewing – CV, Reading the Visual – RV, Reading the Narrative – RN and Sherlock Holmes Personas – SHP.
- Recording units (No.) captured the frequency of visual actions, which occurred as a result of each teaching-learning artefact.

⁴⁴ Appendix 2.1, p.339 presents the full details of the content analysis method.

Table 6.1: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the first project

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
6. After Reflection							8	LL – they ask themselves 'why am I doing this?'	1			
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)							7	RN – they compared themselves to others to consider development of visual approaches	1			
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)							2	RV	2			
							7	RV	2			
							7	RN	1			
							8	RN	1			
							9	RV	1			
							9	RN	1			
							10	RV	1			
							10	RN	1			
							11	RV	1			
							12	RV	1			
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	1	LL – reflection on visual work	1	1	LL – reflection on visual work	1	1	LL – reflection on visual work	1	1	LL – reflection on visual work	1
	2	LL – reflection on visual work	1	2	LL – reflection on visual work	1	3	LL – reflection on visual work and feedback	1	2	LL – reflection on visual work	1
	3	LL – reflection on visual work	1	3	LL – reflection on visual work	1	5	LL – reflection on visual work and feedback	1	3	LL – reflection on visual work, and feedback	1
	5	LL – reflection on visual work	1	4	LL – reflection on visual work	1	6	LL – reflection on visual work	1	3	LL – evaluation of visual work	1
	6	LL – reflection on visual work	1	6	LL – reflection on visual work	1	7	LL – reflection on how they had made visual decisions	1	6	LL – evaluation of their visual way of working	1
	8	LL – reflection on visual work and how they had learnt	1	8	LL – reflection on visual work and how they had learnt	1	8	LL – reflection on visual work and feedback	1	7	LL – evaluation of visual work	1
	9	LL – reflection on visual work	1	9	LL – reflection on visual work and how they had learnt	1	9	LL – reflection on visual work and feedback	1	7	LL – evaluation of their visual way of working	1
	10	LL – reflection on visual work	1	10	LL – reflection on visual work	1	10	LL – reflection on visual work	4	8	LL – reflection on visual work and how they had learnt	1

Table 6.1: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the first project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	10	LL – reflection on visual work and how they had learnt	1	11	LL – reflection on visual work	1	10	LL – reflection on visual work and feedback	1	9	LL – reflection on visual work	1
	10	LL – compared their visual work to others	1	12	LL – reflection on visual work	1	11	LL – reflection on visual work and feedback	1	10	LL – reflection on visual work	1
	11	LL – reflection on work, learning and feedback	1	12	LL – reflection on visual work	1	12	LL – reflection on visual work	1	11	LL – reflection on visual work	1
	12	LL – reflection on visual work	1									
2. Reflection-in-Action (in the same time frame as 1)	1	LL – description of visual work	1	1	RV	1	1	LL – description of visual work	1	1	LL – reflection on visual work	1
	2	LL – description of visual work	1	2	RV	2	2	LL – description of visual work	2	2	LL – reflection on visual work	4
	3	LL – description of visual work	1	3	RV	2	2	RV	1	3	LL – reflection on visual work	5
	4	LL – description of visual work	1	7	RV	2	2	LL – description of visual work	2	7	LL – reflection on visual work	4
	7	LL – description of visual work	1	8	LL – description of visual work	1	3	LL – description of visual work	7	8	LL – reflection on visual work	5
	8	LL – description of visual work	1	8	RV	2	4	RV	2	9	LL – reflection on visual work	3
	9	LL – description of visual work	1	9	RV	2	7	LL – description of visual work	4	10	LL – reflection on visual work	2
	10	LL – description of visual work	3	9	LL – description of visual work	1	8	LL – description of visual work	4	11	LL – reflection on visual work	4
				10	RV	3	9	LL – description of visual work	1			
				11	RV	3	10	LL – description of visual work	3			
				11	LL – description of visual work	3	11	LL – description of visual work	3			
1. Action	1	LL – mood board	2	1	LL – computer generated images	2	1	LL – computer generated images	2	1	LL – computer generated images	4
	2	LL – internet images as a source of inspiration	6	2	LL – internet images	12	2	LL – sketch work	2	2	LL – internet images	2
	3	LL – internet images as a source of inspiration	9	3	LL – internet images as a source of inspiration	14	2	LL – photography	8	2	LL – sketch work	2

Table 6.1: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the first project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
1. Action	3	LL – mood board	4	4	LL – photography	14	3	LL – computer generated images	13	3	LL – internet images as a source of inspiration	4
	4	LL – internet images as a source of inspiration	21	4	LL – computer generated images	25	3	LL – photography	3	4	LL – internet images as a source of inspiration	4
	5	LL – internet images as a source of inspiration	12	5	LL – computer generated images	25	4	LL – computer generated images	15	7	LL – sketch work	7
	7	LL – brainstorm	1	7	LL – inspiration from artist	2	5	LL – computer generated images	4	7	LL – internet images as a source of inspiration	7
	7	LL – internet images as a source of inspiration	26	7	LL – internet images as a source of inspiration	8	7	LL – computer generated images	9	7	LL – images of final work	4
	8	LL – internet images as a source of inspiration	5	7	LL – internet images as a source of inspiration	7	8	LL – sketch work	1	7	LL – images of final work	9
	8	LL – photography	9	7	LL – photography	30	9	LL – development of images	8	8	LL – internet images as a source of inspiration	3
	9	LL – internet images as a source of inspiration	30	8	LL – computer generated images	4	11	LL – development of images	16	8	LL – sketch work	2
	9	LL – mood board	3	8	LL – internet images as a source of inspiration	9	11	LL – sketch work	7	8	LL – images of final work	2
	10	LL – internet images as a source of inspiration	24	8	LL – sketch work	2	11	LL – inspiration from artist	2	9	LL – internet images as a source of inspiration	9
	11	LL – internet images as a source of inspiration	28	9	LL – photography	6				9	LL – sketch work	1
	11	LL – inspiration from artist	6	10	LL – inspiration from artist	4				9	LL – images of final work	2
	11	LL – sketch work	2	10	LL – internet images as a source of inspiration	26				10	LL – images of final work	8
	11	LL – development of images	6	11	LL – development of images	32				11	LL – images of final work	4
	12	LL – internet images as a source of inspiration	15	12	LL – internet images as a source of inspiration	24				12	LL – images of final work	3

In general, the Learning Log helped students to record and observe their visual actions on a weekly basis (*see* Figure 6.4). This was evidenced in Table 6.1 as the Learning Log was coded in Brockbank and McGill's (1998) first, second and third reflective dimensions throughout the first project. However, the solo activity of recording regular observations of their visual actions in their

Learning Log did not, in most cases, lead to such actions being developed or new approaches to engaging in visual contexts being devised. It was observed that visual work was truly developed when the teaching-learning artefacts enabled peer feedback. This observation was evidenced in Table 6.1 as Reading the Visual and Reading the Narrative activities were coded in Brockbank and McGill's (1998) fourth dimension of reflective learning, in the third week of the project, helping students to reflect on (*see* Figure 6.5) and revise their visual work based on social interactions.

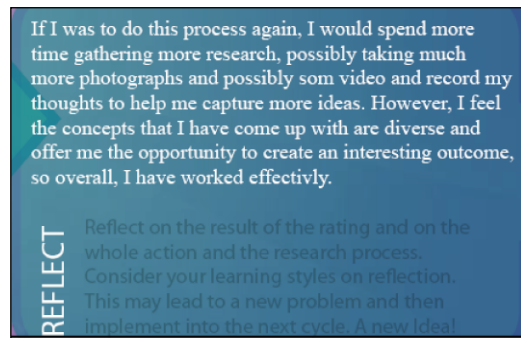


Figure 6.4: A page from Student 11's (of the subgroup of co-participants) Learning Log showing observation on their visual actions in the second week of the first student project

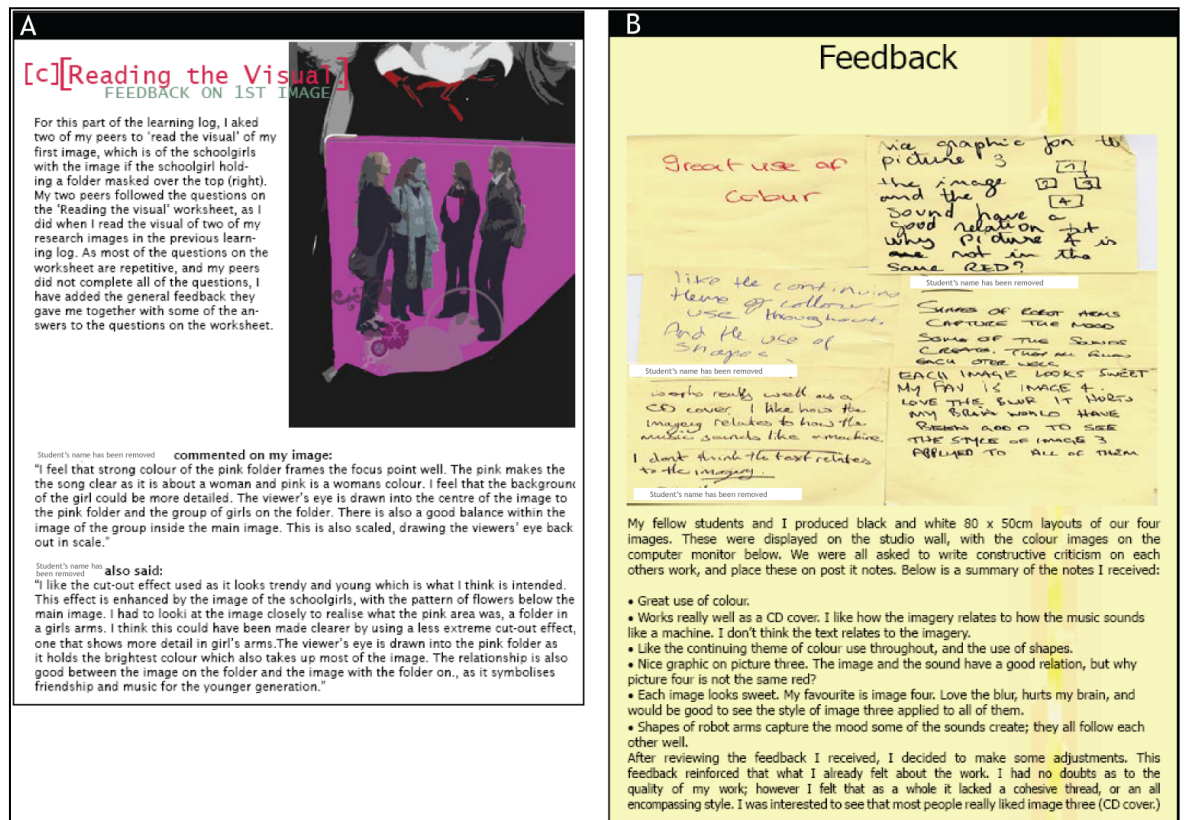


Figure 6.5: Pages from two students' (of the subgroup of co-participants) Learning Logs in the third week of the first student project, showing feedback received from their peers. (A) Student 12's recording peer feedback from the Reading the Visual activity. (B) Student 9's recording peer feedback from the Reading the Narrative exercise.

6.3.2 The Second Student Project

A Project Description

The second project ran over four weeks with the same student group as the first, providing 1.5 hours of contact, three times weekly. This project was conducted during semester one 2006/2007, and the project was incorporated into the second part of the double module – Publishing Design – that was intended to help the students develop a general understanding of desktop publishing for online media. The project brief (see Appendix 2.4.2, p.347) asked students to promote a music group by creating a live demo of an online publishing site. The supporting module tutor assisted with tutorial sessions and assessments, and provided an additional perspective as an experienced lecturer with in-depth knowledge of the course.

A Description of the Design and Implementation of Teaching-Learning Artefacts in the Learning Situation

The second project started with the simplification of the Learning Log, as the initial format of this approach did not work. This excerpt from the reflective diary on a studio session where students were asked to share a week in their Learning Log illustrates:

This session was a big realisation for me: the Learning Log needs to be changed to their level. I felt that Group A had improved their planning, but group B led me to realise the complexity of the Learning Log. They do not perceive the value of the process; they are seeing it as something that they must complete, like a timesheet rather than a critiquing exercise... I feel that it requires development. They need to take ownership of the Learning Log. Student 5 was right when he criticised the terminology... There was little or no evidence in groups A and B that the students have made the distinction between the project and themselves.

This observation led to the Learning Log being simplified (*see* Figure 6.6, A and B). In order to encourage students to take ownership of reflecting on their visual practices, this process of changing the Learning Log was a collaborative effort, where the students had the final say on the format of this teaching-learning artefact.

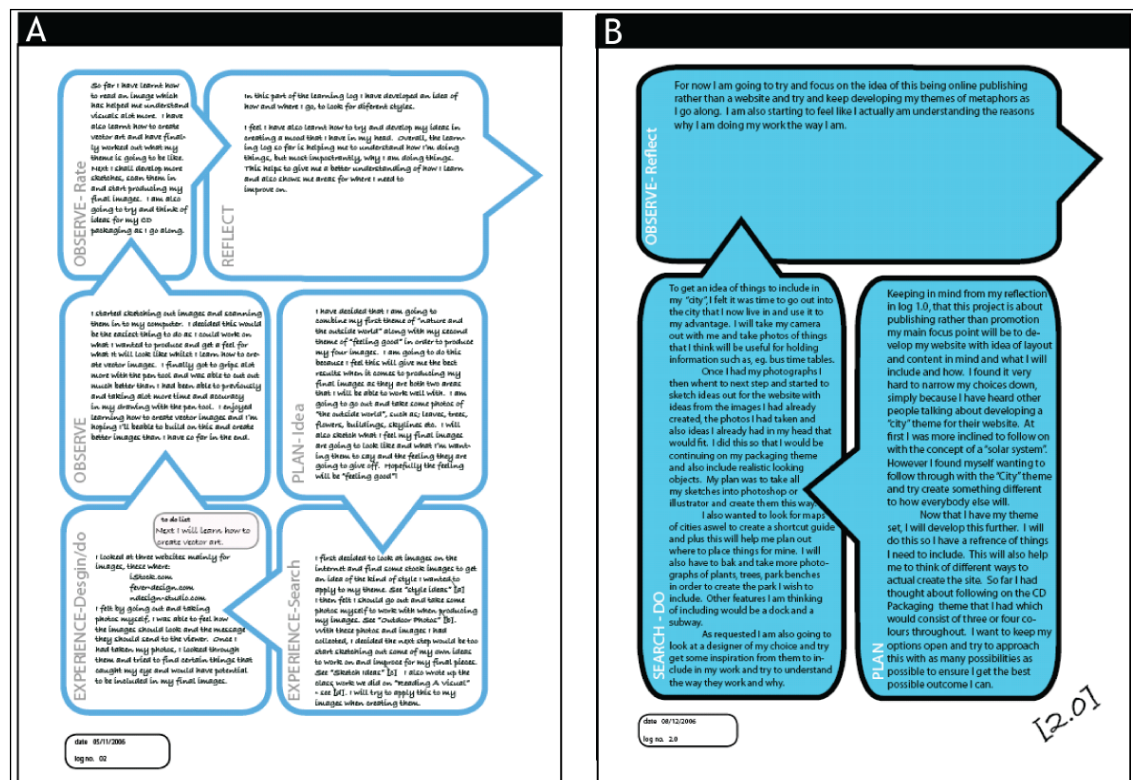


Figure 6.6: Pages from Student 11's (of the subgroup of co-participants) Learning Log, showing how the format changed from the: (A) First student project, to (B) Second student project.

Having simplified the Learning Log, students were left to take ownership of this process and the focus shifted to the facilitation of social interaction to develop visual practices. During the last two

weeks of the project, two feedback sessions were devised to encourage students to reflect on their visual work. They were given the opportunity to display their final websites on the computers around the design studio, for a Feedback Session. As a group, they were then asked to create their own guidelines for the sharing of constructive criticism with their peers, with the intention that this approach would develop ownership of the feedback process, as well as developing their ability to see by looking at other people's work. During this studio session the students appeared to be more engaged than in previous feedback sessions. Another feedback session was developed based around de Bono's Six Thinking Hats⁴⁵ (de Bono, 1999). The aim of this session was to foster students' openness to giving and receiving feedback. They were asked to place their website on the computers around the design studio, and to give feedback on each others' work using Post-Its®. All of the feedback was then collected and discussed. This studio session was extremely effective, as it was a practical and simple way to enable students to:

- Become objective in the way they looked at their own and others' work
- Deal with critique in a positive way
- Interact with one another – for example, if they saw something in someone's work, they were more ready to ask how it was done, and then consider whether to include it in their own array of tools

In the final design critique, students were asked how they would prefer to receive feedback. As in the first project, the Sherlock Holmes Personas were used as a method of peer and tutor assessment alongside the normal marking system. After the session the students appeared to be very willing to engage in giving verbal and written feedback. In addition, the supporting module tutor was very impressed and surprised by the quality of feedback that students had given, commenting that 'their critical abilities were better than those of the third year [Multimedia Design] students!'

During this second project, a number of issues arose with the Sherlock Holmes Personas. The first was that the personas did not describe how each character was seeing, as the following reflective diary excerpt shows:

⁴⁵ The respective hats in the Six Thinking Hats technique are described by de Bono (1999) in the following manner:

1. The White Hat represents pure knowledge gathering, data collection, and historical account. It asks, "What do we know?"
2. The Red Hat represents feelings and hunches. This hat is about emotions and explores fears, likes, dislikes, loves, and hates.
3. The Black Hat focuses on critical negative judgments, a risk analysis. It identifies cautions, dangers and potential problems.
4. The Yellow Hat represents sunshine, brightness and optimism; it is positive and constructive. It addresses feasibility, benefits, advantages, and savings.
5. The Green Hat represents fertility, growth, and the value of seeds. It involves creative thinking and the search for alternatives while generating new concepts and new perceptions.
6. The Blue Hat represents the management of the thinking process. Blue Hat thinkers are like the orchestra conductors seeking the proper balance and blending of the other five hats.

When I have looked at the students' work and discovered issues that develop their seeing, it may be an idea to develop narratives for The Hound, The Cleaner, Dr. Watson and Sherlock Holmes to give tool kits of the way they work and encourage progression through allegory.

From using de Bono's Six Thinking Hats, a second issue arose: students required encouragement to progress to the next character, in order to support their improvement and help them to adapt their visual practices to different contexts. The third issue arising was that barriers had been overlooked, such as negativity that could stop students from developing their visual practices. This became apparent during the design critique, as the following reflective diary extract illustrates:

There appear to be certain behaviours that are difficult for me to address that are preventing some students from achieving. These include lack of technical expertise, failure to apply lateral thinking and negativity, which all contribute to an inability to change and move forward.

A fourth issue was identified: it was apparent that the Sherlock Holmes Personas had to involve an overview of the whole person, e.g. their goals, fears and aspirations. For example, The Cleaner was a reference to an occupation in a negative fashion, and did not adequately portray a whole person. The fifth issue that arose from the study of Pruitt and Grudin's (2003) paper was that the personas in use were based on one data set; to further explore visual practices a triangulation of data was required.

In summary, to achieve a shared understanding of visual practices required further work in the next project. This project had demonstrated that providing a structure for students to give and receive feedback was extremely important to enable their critical questioning of what they had seen, as well as to facilitate reflection on visual actions.

Content Analysis – Evaluating the Use of the Teaching-Learning Artefacts in Relation to Fostering Designers' Visual Practices

Table 6.2 displays the results of the content analysis conducted on the twelve student artefacts (Learning Logs) obtained from the second project. The context units (reflection unit, student unit – ID 1-12 and recording units – No.) devised to code visual actions remained the same as the first project, apart from the teaching-learning artefacts unit (Artefacts), which changed to code the artefacts designed and implemented during the second student project: Learning Log – LL, Feedback Session – FS, de Bono's Six Thinking Hats – DB and Sherlock Holmes Personas – SHP.

Table 6.2: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the second project

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
6. After Reflection												
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)							2	FS – recording of feedback that led to a change in visual ideas	1	2	DB – recording of feedback that led to a change in visual ideas	1
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)							2	FS – recording of feedback on visual design	1	2	DB – recording of feedback on visual design	1
							8	DB -recording of feedback on visual design	1	5	DB – recording of feedback on visual design	1
										8	LL – recording of feedback required from a web forum	1
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	2	LL – reflection on visual work and areas to improve	1	1	LL – reflection on visual work	1	2	LL – reflection on visual work	1	2	LL – reflection on visual work	1
	3	LL – reflection on visual work and areas to improve	1	2	LL – reflection on visual work	1	3	LL – reflection on visual work	1	2	LL – reflection on visual skills learnt	1
	4	LL – reflection on visual work and areas to improve	1	3	LL – reflection on visual work	1	4	LL – reflection on visual work	1	3	LL – evaluation of visual work	1
	5	LL – reflection on visual work and areas to improve	1	5	LL – reflection on visual work	1	7	LL – reflection on visual work and barrier stopping development	1	4	LL – evaluation of visual work taking on board peer feedback	1
	7	LL – reflection on visual work and barrier stopping development	1	7	LL – reflection on visual work and barrier stopping development	1	8	LL – reflection on visual work and areas to improve	1	4	LL – reflection on visual work	1
	8	LL – reflection on visual work	1	8	LL – reflection on visual work and areas to improve	1	9	LL – reflection on visual work and areas to improve	1	5	LL – reflection on visual work	1
	9	LL – reflection on visual work	1	9	LL – reflection on visual work and areas to improve	1	10	LL – reflection on visual work	1	5	LL – evaluation of visual work	1
	10	LL – reflection on visual work	1	10	LL – reflection on visual work	1	11	LL – reflection on visual work and barrier stopping development	1	5	LL – evaluation of visual work taking on board peer feedback	1

Table 6.2: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the second project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	11	LL – reflection on visual work	1	11	LL – reflection on visual work	1				7	LL – evaluation of visual work and areas to improve learning	1
										7	LL – evaluation of visual work	1
										8	LL – evaluation of visual work and areas to improve learning	1
										9	LL – reflection on visual work	1
										11	LL – evaluation of visual work and areas to improve learning	1
2. Reflection-in-Action (in the same time frame as 1)	1	LL – description of visual work	1	1	LL – description of visual work	1	2	LL – description of visual work	4	2	LL – reflection on visual work	6
	1	LL – description of visual work	3	1	LL – description of visual work	1	3	LL – description of visual work	4	3	LL – reflection on visual work	3
	2	LL – description of visual work	3	3	LL – description of visual work	1	4	LL – description of visual work	1	4	LL – reflection on visual work	3
	3	LL – description of visual work	3	3	LL – description of visual work	6	4	LL – description of visual work	3	5	LL – reflection on visual work	1
	3	LL – description of visual work	10	4	LL – description of visual work	4	7	LL – description of visual work	2	7	LL – reflection on visual work	3
	4	LL – description of visual work	3	5	LL – description of visual work	7	8	LL – description of visual work	2	8	LL – reflection on visual work	2
	5	LL – description of visual work	1	7	LL – description of visual work	4	9	LL – description of visual work	1	10	LL – reflection on visual work	1
	5	LL – description of visual work	2	7	LL – description of visual work	3	10	LL – description of visual work	1	11	LL – reflection on visual work	1
	6	LL – description of visual work	2	8	LL – description of visual work	4	11	LL – description of visual work	1			
	7	LL – description of visual work	1	10	LL – description of visual work	1						
	7	LL – description of visual work	3	11	LL – description of visual work	2						
	8	LL – description of visual work	3	12	LL – description of visual work	2						
	9	LL – description of visual work	3									

Table 6.2: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the second project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
2. Reflection-in-Action (in the same time frame as 1)	10	LL – description of visual work	3									
	11	LL – description of visual work	2									
1. Action	2	LL – internet images as a source of inspiration	14	1	LL – digital layout	7	2	LL – photography	27	2	LL – digital layout	14
	2	LL – inspiration images	14	1	LL – internet images as a source of inspiration	7	2	LL – digital layout	11	3	LL – digital layout	10
	3	LL – internet images as a source of inspiration	31	2	LL – sketch work	2	3	LL – internet images as a source of inspiration	6	4	LL – digital layout	2
	3	LL – review of inspirational website	4	2	LL – review of inspirational website	4	4	LL – internet images as a source of inspiration	17	4	LL – digital layout	6
	4	LL – review of inspirational website	7	2	LL – designer research	1	4	LL – photography	5	4	LL – internet images as a source of inspiration	1
	4	LL – digital layout	8	2	LL – sketch work	3	5	LL – review of inspirational website	5	7	LL – digital layout	3
	4	LL – sketch work	1	3	LL – sketch work	7	5	LL – digital layout	6	8	LL – digital layout	2
	5	LL – mood board	1	3	LL – digital layout	1	7	LL – digital layout	5	9	LL – digital layout	2
	5	LL – internet images as a source of inspiration	11	4	LL – digital layout	1	8	LL – digital layout	5	11	LL – digital layout	4
	5	LL – digital layout	2	5	LL – internet images as a source of inspiration	2	8	LL – photography	6			
	6	LL – research designer for inspiration	2	5	LL – sketch work	1	8	LL – sketch work	1			
	6	LL – review of inspirational website	6	5	LL – digital layout	2	8	LL – internet images as a source of inspiration	2			
	6	LL – digital layout	3	5	LL – review of inspirational website	3	9	LL – visual research	1			
	7	LL – review of inspirational website	3	7	LL – internet images as a source of inspiration	4	10	LL – digital layout	2			
	8	LL – review of past work	3	7	LL – digital layout	2	11	LL – digital layout	2			
	9	LL – review of inspirational website	3	8	LL – photography	34	11	LL – digital layout	1			
	9	LL – sketch work	3	8	LL – sketch work	3	12	LL – digital layout	6			

Table 6.2: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the second project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
1. Action	9	LL – digital layout	3	8	LL – review of inspirational website	6						
	10	LL – review of inspirational website	2	8	LL – digital layout	2						
	10	LL – internet images as a source of inspiration	26	9	LL – inspiration from artist	1						
	11	LL – digital layout	1	9	LL – internet images as a source of inspiration	2						
	11	LL – sketch work	1	10	LL – inspiration from artist	2						
	12	LL – sketch work	3	11	LL – digital layout	4						
	12	LL – review of inspirational website	3	11	LL – inspiration from artist	1						

The Learning Log enabled all twelve students to regularly record and observe their visual actions and learning after the event, which was evident in the second and third reflective dimensions in Table 6.2. However there was no evidence that the solo activity of recording and observing had led to students considering or developing new approaches to engage in visual contexts during the project. Nevertheless, in seven instances it was observed in the third reflective dimension in Table 6.2 at the end of the second project, students in their Learning Logs had evaluated their own visual skills and evaluated what they had learnt. It was observed through the fourth and fifth dimensions of reflective learning in Table 6.2, that some students had commented on teaching-learning artefacts that had enabled them to progress their visual work through peer feedback – that is, the Feedback Session and de Bono's Six Thinking Hats (*see* Figures 6.7 and 6.8) exercises aided some students to reflect and develop their visual work based on peer feedback.

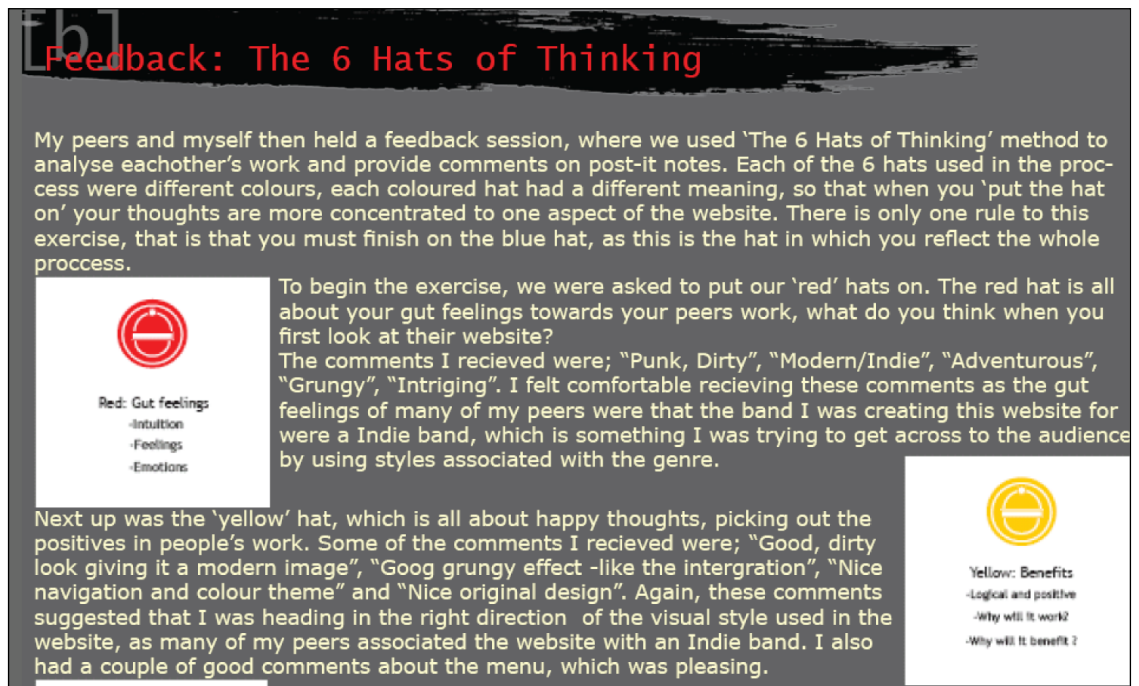


Figure 6.7: A page from student 2's (of the subgroup of co-participants) Learning Log in the fourth week of the second student project that shows feedback from de Bono's Six Thinking Hats exercise

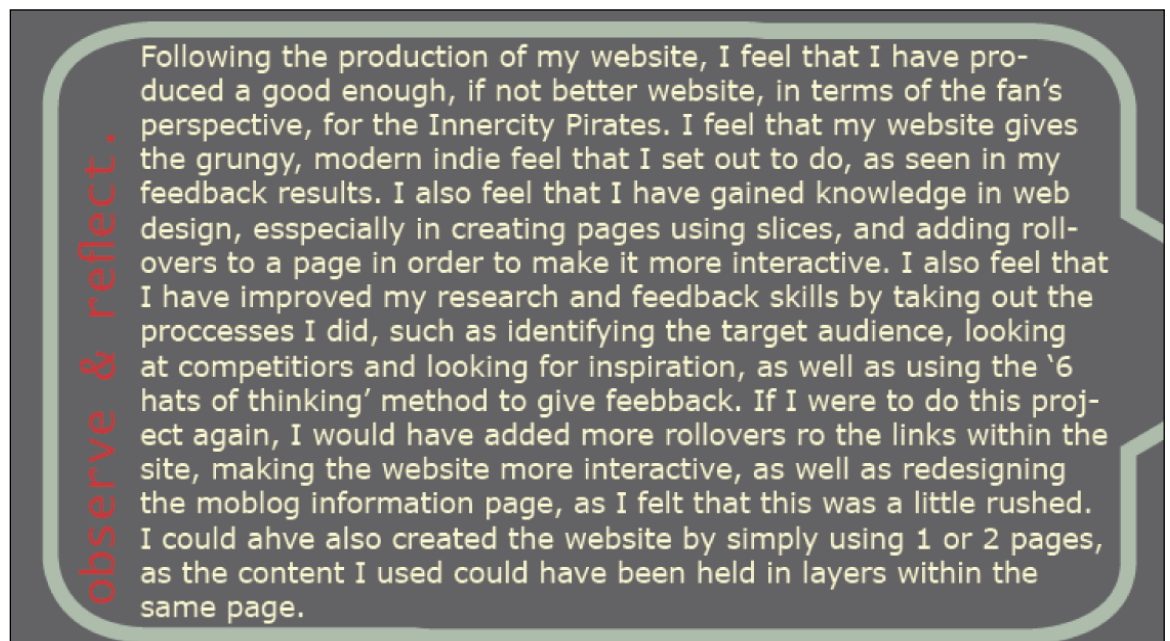


Figure 6.8: A page from a Learning Log produced in the second student project that shows how Student 2 (of the subgroup of co-participants) changed his ideas based on feedback from the de Bono Six Thinking Hats

6.3.3 The Third Student Project

A Project Description

The project ran for four weeks with the same student group as the first and second projects, with 1.5 hours of contact three times weekly. This project was conducted during semester two 2006/2007 and was incorporated into a single module entitled Innovative Interfaces. The intention of this module was to develop students' ability to think innovatively about a user interface. The project brief (*see* Appendix 2.4.3, p.349) asked students to select a philosophy (holism, reductionism, modernism, post-modernism, structuralism or post-structuralism) and apply its values to a digital interface. The intention was that every student would study the philosophical movement and gain a new way of seeing which reflected the movement's historical and political setting. A supporting tutor assisted in tutorial sessions and assessments and provided an additional perspective as a new lecturer to the Multimedia Design degree.

A Description of the Design and Implementation of Teaching-Learning Artefacts in the Learning Situation

Exercises were devised at the outset of this project, to enable students to understand a way of seeing that lay beneath their chosen philosophy. The first exercise, a brainstorming technique, was used to show students how to extract core values from their chosen philosophy. This involved asking students to brainstorm what they understood of the hippy movement on a large piece of paper, including when it happened, why it happened, who was against it, the language used, events, lifestyle, visual style, travel and why it ended. They were then asked to identify the social, historical, cultural and political elements that they had generated in the brainstorm. Following this exercise, students were able to apply the approach when considering their selected philosophy, as they knew what elements to look for when researching (*see* Figure 6.9). When students had brainstormed their chosen philosophy, they began effective research, engaging with a range of research material, gaining information from the Internet and book resources.

Following the brainstorming activity, students were placed into groups of opposing philosophies (holism/reductionism, modernism/post-modernism, structuralism/post-structuralism) to enable them to understand the way of seeing that lay beneath their chosen philosophy. Each group was asked to discuss their brainstorm, then analyse a magazine cover using the values and way of seeing of the opposing philosophy. In addition they were asked to develop personas based on the attributes of their philosophy, which they later could develop independently. The following excerpt from the reflective diary describes what happened during the group activity:

Student 8 [had selected holism as his philosophy] asked, “If a man was in the road would it mean that I would look at him, the road and a car coming towards him and say what would happen? Whereas a reductionist would look at the man and reduce him down to the atoms of his body”... The personas really worked well in the big group. Student 4 said that she had understood it, “Dr. Who is the modernist and the post-modernists are the Daleks”.

Through triangulating data gained from the previous projects, a second version of the Sherlock Holmes Personas (*see* Figure 6.10) was developed to address the issues that arose with the first (*see* Appendix 2.2.3, p.329 for full description of the development of this teaching-learning artefact). The second version of the Sherlock Holmes Personas conveyed The Cleaner’s goals and changed her title to Mrs Hudson – the Housekeeper, which was felt to be less derogatory. The Hound was also removed, as there was little data to create characteristics. Hence, each characteristic in the second version of the Sherlock Holmes Personas represented different approaches of looking and seeing, i.e. Mrs Hudson could look but not see, Dr. Watson could look and see, and Sherlock Holmes knew when to look and see. This second version of the Personas was used in the students’ concept and final design critiques as a method of peer and tutor evaluation (*see* Appendix 2.2.3 for full description of use).




<p>Mrs. Hudson</p>  <p>'Looking but not seeing'</p>	<p>Seeing:</p> <p>...She works hard through trial and error where decisions are based on personal opinion and knowledge.</p> <p>...She can see the need for change if this is pointed out to her.</p>	<p>Reflect:</p> <p>...She doesn't reflect on her work or herself, therefore her decision-making is not informed.</p> <p>Barriers which stop 'Seeing':</p> <p>... single minded does not seek to add to her knowledge pool.</p> <p>...unquestioning about her work, finds it difficult to offer suggestions to others.</p>	<p>To improve: She needs to take responsibility for her work by:</p> <ol style="list-style-type: none"> 1. Reflecting regularly, questioning 'what', 'where' and 'how', to understand what is appropriate' for her audience. 2. Employing methods to question and update her knowledge during the: <ul style="list-style-type: none"> a. Research stage: b. Development stage: <p>Expand: Brainstorming and sketch work.</p> <p>Explore: Inspiration of all types, be inquisitive and question visual images throughout the design process.</p> <p>Analysis: Taking time to "see", and analyse what they are seeing.</p>
<p>Dr. Watson</p>  <p>'Looking and Seeing'</p>	<p>Seeing:</p> <p>...Knows he is capable of 'seeing' using trial and error and previous knowledge, but will realise there are other ways to see by:</p> <ul style="list-style-type: none"> -taking photographs -understanding his audience -sketching -new research material. <p>...He takes responsibility of his work by:</p> <ul style="list-style-type: none"> -questioning his work. -offering feedback to others, wants to contribute. -being able to take direction and incorporate this into his practice. 	<p>Reflect:</p> <p>...He reflects on his work giving a good diagnosis, see his weaknesses. However he does not yet reflect on himself.</p> <p>Barriers which stop 'Seeing':</p> <p>...sometimes he does not know when and how to use his 'seeing' ability.</p> <p>...does not feel confident enough to look round the edged.</p> <p>...pursuit of perfection can stop him moving on and experimenting.</p>	<p>To improve: He needs to take ownership of his learning through:</p> <ol style="list-style-type: none"> 3. Reflecting on himself: <ul style="list-style-type: none"> a. To realise when it is necessary to take some time to 'think', when the stake are high. Asking: 'Why am I doing 4. Developing as a self-directed learner by: <ul style="list-style-type: none"> a. Actively seeking to update his knowledge rather than waiting for information from others. b. Seeing that failure is a positive thing, understood. and that failure early in a project can leads to a better outcome and learning experience. c. Being more adventurous, trying out new ideas or tools. Feeling brave enough to explore further, analyse what is unusual and what is not understood.
<p>Sherlock Holmes</p>  <p>'Knows when to look and when to see'</p>	<p>Seeing:</p> <p>...Applies himself to new challenges by:</p> <ul style="list-style-type: none"> -looking at the audience and brainstorming. -discover new knowledge to help him solve problems. -interested in looking beyond his peer group for insights. -comparing his work to others -actively seeking feedback from others. -still working by trial and error but guided by a systematic process, developed through past notes. <p>...However, he realises the importance of evaluating 'what is appropriate', before putting new process and data into practice.</p>	<p>Reflect:</p> <p>...takes ownership of his own learning by:</p> <ul style="list-style-type: none"> - questioning what he does not understand. -takes responsibility for his work. -Reflects upon problems actively, (regularly). -reflect on himself. <p>Barriers which stop 'Seeing':</p> <p>...There may be times when he over reflects, which stop him from solving the problem.</p>	<p>To improve: He must constantly transform his ability to see and learn through:</p> <ol style="list-style-type: none"> 5. Continuing to question, evolve, experiment and change 6. Apply reflection on a plan by: <ul style="list-style-type: none"> a. Acquiring an understanding of any weakness in his learning, taking this into account when planning. b. Developing some imaginative ways to plan, trying new methods 'of seeing'.

Figure 6.10: Second version of the Sherlock Holmes Personas

The second version of the Sherlock Holmes Personas was introduced to students during a Self-Evaluation Activity (see Appendix 2.2.3, p.329 for full description of use), with the intention of identifying possible improvements that they could make to their visual practices. Students reviewed their Learning Logs from the first and second projects in chronological order, identifying

and recording with Post-Its® any instances where they were looking and seeing (see Figure 6.11) and which Personas they were portraying. Next, students discussed with a partner what they observed in their own Learning Log and identified any areas for possible improvement to their visual practices, as the following reflective diary extract describes:

Student 2 said she was just looking all the time. Student 3 recognised that reflection is important but before that he had only thought that planning was important. This showed that he recognised the need to improve... The way that the students had begun to talk about improvements reflected the benefit of using the Personas... Overall, when they were talking through in the groups, it emerged that they can quite easily see where they are seeing and where they are looking but they still need guidance... Student 10 reported that the Learning Logs are about going back over the work done and reflecting on yourself rather than on the project. Student 11 realised that he needs to see more in his design section.

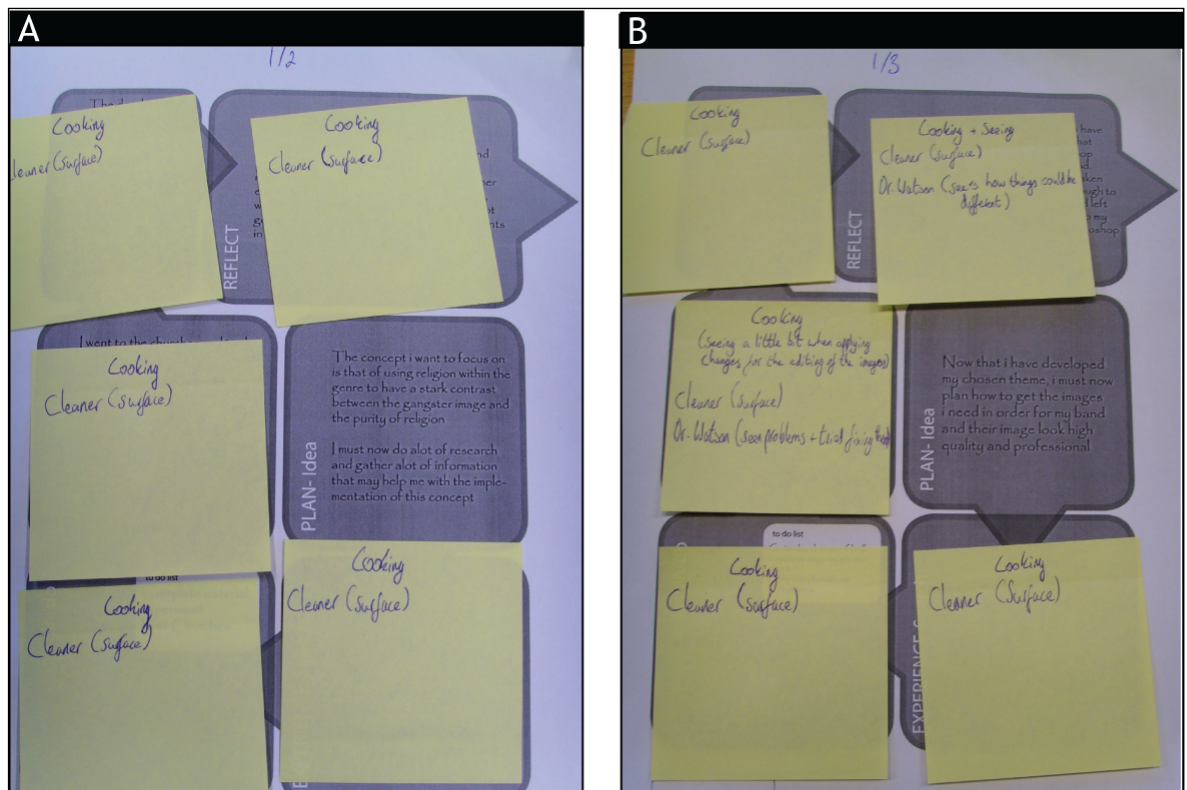


Figure 6.11: Pages from Students 1's (of the subgroup of co-participants) Learning Log using Post-Its® to record any instances where they were looking and seeing, and which Sherlock Holmes Persona they had portrayed: (A) In the second week of the first student project, (B) In the third week of the first student project

During the concept presentation, mid-way through the project, it became apparent that the students were happy to use the Sherlock Holmes Personas, as the following extract from the reflective diary describes:

Students were quick to respond when asked to feedback to their peers... There was still no resistance to the Personas being used, everyone being happy to have them on the table and speak about them.

Following this studio session the supporting module tutor described how she felt the Sherlock Holmes Personas had worked. The following excerpt from the reflective diary summarises her comments:

She [the supporting module tutor] thought that the Personas had given clear elements that can be identified and that this provides the bridge between the work and the Personas, enabling the students to see more clearly and creatively what needs to be improved. She thought that the method was amazing, and that it was great for first years to get into that way of thinking... She compared the work to the third years', as she reviewed the first year presentation that she had just seen, and considered that these first years had far greater understanding of their work and of why they had done what they did and the reasoning and the concept behind it; they seemed to be a lot more solid. It felt that if they persisted in this way of seeing and looking at the work and looking at themselves this way, then they would be a good third year. She was very impressed. 'The whole terminology is so easy to understand and speaks volumes and it is easy to identify students with the Personas and understand how to improve them...She found that certain people were good at using the Personas to give feedback at amazing speed.'

It is worth noting that, after one studio session, students demonstrated clear aspirations towards achieving the Sherlock Holmes character, as this extract from the reflective diary illustrates:

After this session with Group A it was interesting that student 2 talked to student 10 about wanting to be Sherlock Holmes. I think she has a goal now... Aspirations seemed to have been raised as some students were heard suggesting that they wished to become Sherlock Holmes.

Although students had responded well to the Sherlock Holmes Personas, their feelings about the Learning Log were mixed. For example, one student stated that they wanted to 'continue the Learning Log when the project is finished as I find it helpful and rewarding'. Others used it to document and deal with their negativity, although two students (from the subgroup of co- co-participants) did not find it useful at all. In summary, this project supported design students to reflect on and improve their visual practices, through social interactions.

Content Analysis – Evaluating the Use of the Teaching-Learning Artefacts in Relation to Fostering Designers’ Visual Practices

Table 6.3 displays the results of the content analysis conducted on the twelve students’ artefacts (Learning Logs) obtained from the third project. The context units (reflection unit, student unit – ID 1-12 and recording units – No.) devised to code visual actions remained the same as the first and second projects apart from the teaching-learning artefacts unit (Artefacts), which changed to code the artefacts designed and implemented during the second student project: Learning Log – LL, Brainstorm of their chosen philosophy – B, Personas of their chosen philosophy – P, Sherlock Holmes Personas – SHP, Self-Evaluation Activity – SEA and de Bono’s Six Thinking Hats – DB.

Table 6.3: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the third project

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
6. After Reflection	10	LL – recorded changes to visual practices	1									
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)	1	SEA/SHP – understand areas to improve visual practices	1	2	LL – recorded change to visual work based on peer feedback	1	2	LL – recorded change to visual work based on peer feedback	1	2	DB – recorded change to visual work based on peer feedback	1
				3	LL – recorded change to visual work based on peer feedback	1	2	SEA/SHP – understand areas to improve visual practices	1			
				5	SEA/SHP – understand areas to improve visual practices	1	2	SEA/SHP – understand areas to improve visual practices	1			
				5	LL – recorded change to visual work based on peer feedback	1	3	LL – recorded change to visual work based on peer feedback	1			
				7	LL – recorded change to visual work based on peer feedback	1						
				7	LL – recorded change to visual work based on peer feedback	1						
				12	LL – recorded change to visual work based on peer feedback	1						
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)				10	LL – recording of peer feedback	1	5	DB – recording of peer feedback	1	1	DB – recording of peer feedback	1
							10	LL – recording of tutor feedback	1	8	DB – recording of peer feedback	1
							10	DB – recording of peer feedback	1	8	LL – recording of feedback from a web forum	1
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	1	LL – reflection on visual work	1	1	LL – reflection on visual work	1	1	LL – reflection on visual work and areas to improve	1	1	LL – reflection on visual work	1
	2	LL – reflection on visual work and barrier stopping development	1	2	LL – reflection on visual work	1	1	LL – reflection on visual work	1	2	LL – evaluation of visual work and learning	1
	3	LL – reflection on visual work	1	3	LL – reflection on visual work	1	2	LL – reflection on visual work	1	4	LL – evaluation of visual work and learning	1

Table 6.3: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the third project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	4	LL – reflection on visual work	1	4	LL – reflection on visual work	1	4	LL – reflection on visual work	1	5	LL – reflection on visual work	1
	5	LL – reflection on visual work	1	5	LL – reflection on visual work	1	5	LL – reflection on visual work	1	5	LL – evaluation of visual work and learning	1
	7	LL – reflection on visual work	1	7	LL – reflection on visual work and areas to improve	1	7	LL – reflection on visual work	1	7	LL – evaluation of visual work and learning	1
	8	LL – reflection on visual work and areas to improve	1	8	LL – reflection on visual work and areas to improve	1	8	LL – reflection on visual work	1	7	LL – evaluation of visual work and learning	1
	9	LL – reflection on visual work	1	9	LL – reflection on visual work	1	9	LL – reflection on visual work	1	8	LL – reflection on visual work	1
	10	LL – reflection on visual work	1	10	LL – reflection on visual work	1	10	LL – reflection on visual work	1	8	LL – evaluation of visual work and learning	1
	11	LL – reflection on visual work	1	11	LL – reflection on visual work and areas to improve	1	11	LL – reflection on visual work	1	9	LL – evaluation of visual work and learning	1
	12	LL – reflection on visual work	1	12	LL – reflection on visual work	1	12	LL – reflection on visual work	1	10	LL – evaluation of visual work and learning	1
										11	LL – reflection on visual work	1
										12	LL – reflection on visual work	1
2. Reflection-in-Action (in the same time frame as 1)	1	LL – description of visual work	3	2	LL – description of visual work	1	2	LL – description of visual work	1	3	LL – description of visual work	1
	1	LL – description of visual work	1	2	LL – description of visual work	3	2	LL – description of visual work	1	4	LL – description of visual work	1
	3	LL – description of visual work	1	3	LL – description of visual work	3	3	LL – description of visual work	1	7	LL – description of visual work	1
	4	LL – description of visual work	1	4	LL – description of visual work	6	4	LL – description of visual work	1	8	LL – description of visual work	1
	5	LL – description of visual work	1	5	LL – description of visual work	1	7	LL – description of visual work	1			
	5	LL – description of visual work	3	7	LL – description of visual work	1	8	LL – description of visual work	1			
	6	LL – description of visual work	3	8	LL – description of visual work	3	11	LL – description of visual work	1			
	7	LL – description of visual work	1	9	LL – description of visual work	3						
	7	LL – description of visual work	1	11	LL – description of visual work	1						

Table 6.3: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the third project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
1. Action	1	LL – background reading on their chosen philosophy	1	1	LL – internet images as a source of inspiration	36	1	LL – digital layout	3	2	LL – flowchart	1
	2	LL – review of inspirational website	1	2	LL – background reading on their chosen philosophy	1	2	LL – sketch work	4	2	LL – storyboard	1
	2	LL – background reading on their chosen philosophy	1	2	LL – persona	2	2	LL – review of inspirational websites	3	2	LL – visual research	1
	2	B	1	3	LL – sketch work	9	3	LL – sketch work	3	3	LL – sketch work	4
	3	LL – review of inspirational website	1	4	P	1	4	LL – digital layout	4	3	LL – photography	8
	3	B	2	4	LL – inspiration images	18	4	LL – sketch work	1	3	LL – digital layout	1
	4	LL – background reading on their chosen philosophy	1	5	LL – sketch work	1	7	LL – photography	6	4	LL – digital layout	6
	4	B	1	5	LL – photography	12	8	LL – background reading on their chosen philosophy	2	5	LL – sketch work	4
	4	LL – inspiration images	69	5	LL – flowchart	1	8	LL – sketch work	1	5	LL – digital layout	5
	5	LL – review of inspirational website	1	5	LL – digital layout	1	8	LL – inspiration from artist	1	7	LL – digital layout	8
	5	LL – background reading on their chosen philosophy	1	7	LL – sketch work	4	8	LL – sketch work	4	8	LL – sketch work	1
	5	B	1	7	LL – internet images as a source of inspiration	20	9	LL – mood board	2	8	LL – digital layout	8
	5	LL – sketch work	3	8	P	1	10	LL – sketch work	6	9	LL – digital layout	6
	6	LL – background reading on their chosen philosophy	1	8	LL – sketch work	3	11	LL – digital layout	1	12	LL – sketch work	8
	6	LL – review of inspirational website	1	9	LL – sketch work	3	12	LL – storyboard	1			

Table 6.3: Results of the content analysis conducted on the twelve students' artefacts (Learning Logs) obtained from the third project (continued)

Reflection Unit	Learning Log 1 Research			Learning Log 2 Concepts			Learning Log 3 Development			Learning Log 4 Prototype		
	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.	ID	Artefacts	No.
1. Action	7	LL – review of inspirational website	1	10	LL – sketch work	6						
	7	LL – background reading on their chosen philosophy	1	11	P	1						
	7	LL – Brainstorm opposite philosophy	1	11	LL – background reading on their chosen philosophy	1						
	7	B	1	11	LL – sketch work	3						
	7	LL – review of inspirational website	2	11	LL – digital layout	3						
	8	LL – background reading on their chosen philosophy	4									
	8	LL – review of inspirational website	1									
	8	B	1									
	9	LL – background reading on their chosen philosophy	1									
	9	B	1									
	9	LL – inspiration from artist	1									
	9	LL – review of inspirational website	1									
	10	LL – background reading on their chosen philosophy	1									
	10	B	1									
	10	LL – review of inspirational website	1									
	11	LL – review of inspirational website	2									
	12	B	1									
	12	LL – internet images as a source of inspiration	18									

As in the last two student projects, the Learning Log had assisted the recording and observing of visual actions, with eight students evaluating these actions at the end of the project. This observation was evident in the second and third reflective dimensions in Table 6.3. This may

indicate the process of recording (*see* Figure 6.12 – describing the background reading on their selected philosophy) and observing visual actions on a regularly basis, developed students' self-awareness of visual practices. The following example was entered in the reflect box of the Learning Log in week one of the third project. Here, student 10 describes his developed awareness of his own learning:

Along with my work developing I feel I have learnt new things as well. I now read a lot more books and look out for things to use in my work constantly... I feel I can use criticism in my work as well. See where other people are coming from and how they think and work, not that I will always take criticism on board but what I feel is relevant I will also try to use and improve.

During the third project it was also observed from the fourth and fifth reflective dimensions in Table 6.3 that the teaching-learning artefacts (Learning Log and de Bono's Six Thinking Hats) had enabled students to progress both their visual work and their approaches through peer feedback. In addition, in the fifth reflective dimension in Table 6.3, it was observed four students had recorded areas of change in their visual approaches, engaging in reflexive conversations facilitated by the Self-Evaluation Activity (*see* Figure 6.13).

Ial Further Research

In order to find out more about postmodernism and the ideas behind the movement, I looked in the library for the following books:

- Meggs Complete History of Graphic Design, Meggs, P.B.
- Graphic Design and communication, Barnard, M.
- No More Rules: Graphic Design and Postmodernism, Poynor, R.
- The End of Print, Blackwell, L.

I have chosen to look at these books in order to find out more about the graphic design aspect of the postmodernist movement, as I feel that if I focus on one aspect of design, then I could develop a better understanding for the movement and will feel in a better position to generate my three conceptual ideas. From reading these books, I jotted down the following notes:

'Designers began to **ignore** the carefully placed items of Modernist Graphic Design, e.g Rosemarie Tissi experimented by placing images **randomly in a pile**, instead of being aligned in boxes as this **engages** the viewer more to fill the missing lines of the ruled lines of the edges of the images.'

Meggs complete History of Graphic Design, Meggs, P.B, p435



'Wolfgang Weingart also began **breaking away** from the refined stage of Typographic design of the Modernist era by **rejecting the right-angle** in order to achieve his intuitive designs.'

Meggs complete History of Graphic Design, Meggs, P.B, p436



Figure 6.12: A page from student 9's (of the subgroup of co-participants) Learning Log produced in second week of the third student project – describing the background reading on their selected philosophy (post-modernism)

During this project, I was asked to complete a self evaluation form, from which I would observe and evaluate my learning style through the learning log and the Sherlock Holmes personas I have been using in my feedback of presentations. Here are the answers to the questions:

1. I feel that I was around the Doctor Watson area, as I feel that I take feedback from others on board, but I tend to cut corners if I don't fully understand what is being suggested to me.
2. Comments on stick-its: 'looking' on plan/do, 'seeing' on reflection, and 'need to see before I carry out task here in order to improve' on the 'do' section.
3. In my learning log, I am looking at the plan and do stages, and then I am seeing in the reflection stage. My work shows the characteristics of Doctor Watson in the 'plan' and 'do' stages as I do think ahead, but I do not cover everything, always leaving room for improvement. But I feel that I am Sherlock Holmes in the 'reflection' stage as I am thoroughly analysing what I have done in the Learning log and finding improvements.
4. Me and my partner observed each other's learning logs and stick-its and suggested to each other where we needed to improve by looking at the stick-it notes and suggesting where we need to 'look' and 'see' more.
5. From the previous learning logs, the most valuable parts of them would have been the plan and reflect, and the least valuable parts being the observe and rate sections, as these were a little confusing.
6. In my experience the most important parts of the learning log are the plan and reflection sections, as I now feel it is important to plan what you are going to do but also reflect on how well you have done, compared to what I set out to do.
7. There would be no differences in my answer above prior to the self evaluation session.
8. My experiences of the learning log in parts A and B of the project was that, although it was confusing and sometimes frustrating at first, the learning log turned out to be quite

useful to me in terms of planning what I do and reflecting upon my tasks afterwards.

9. The improvements which I need to make include; I need to begin 'seeing' in the research stage of the project, as I tend to be a bit naïve in this stage, and this reflects onto my concept ideas, also, I need to 'see' before I carry out each task in my learning logs as this will help me see and overcome any problems that I may encounter and which may also effect my workflow.

10. Through the Sherlock Holmes characters, I feel that I could improve my planning stage in the following ways; take note of what I'm doing, how I'm doing it and why I'm doing it that way, be more adventurous in trying out new ideas and tools, develop imaginative ways to plan and take into account my weaknesses in my learning/working style and try to build on that.

11. The Sherlock Holmes characters have helped me understand my learning style more and have gave me ideas as to how I can improve this. They have also helped me understand the learning process behind the learning logs.

12. I feel that the Sherlock Holmes characters have helped me understand where I am going wrong in the planning stage, as my answer to question 10 shows, so I can now take this on board and begin to work on these weaknesses.

13/14. I do agree with using characters for feedback, as I feel that by using the characters, we are using a persona to analyse our work and whom we could look at their learning styles in order to improve our own. This is more valuable that using a number scale, as we cannot relate to numbers as well as the personas.

I will use the answers to this self-evaluation to help improve my learning and my 'looking' and 'seeing' within the rest of this project and in the future, as this will help me in my whole learning process for each of my projects.

Figure 6.13: A page from student 2's (of the subgroup of co-participants) Learning Logs produced in the third student project showing reflection on visual practices, using the Self-Evaluation Activity to reflect on the way that they had looking and seeing

6.4 Overview of the Design Experiments

This chapter presented a thick description of the teaching-learning artefacts that were designed and implemented to foster students' visual practices during the design experiments, in the form of a design narrative. The intention of providing a thick description of the learning situation is to promote external validity, so that the reader can observe how the research findings occurred, allowing the value to be transferred to other settings. Data collected from the dialogue and design decisions surrounding the teaching-learning artefacts contributed to the analysis and research findings in Chapter 8. This chapter explores the development and fostering of visual practices in collaboration with design students, and what follows in Chapter 7 is an investigation into the fostering of such practices through the educator's lens.

Chapter Seven: User Testing - Case Studies in Fostering Designers' Visual Practices

7.1 Introduction

This chapter presents case studies of design educators fostering designers' visual practices, which is described in Section 5.4.3, p.91 as the second and final research phase of this study. This phase involved the observation of two cases of design educators implementing the teaching-learning artefacts devised in the previous research phase into a single module of undergraduate study, on the first year of the Multimedia Design course at Northumbria University. The approach to user testing described below led to insights into the fostering of designers' visual practices through the design educators' eyes. The teaching-learning artefacts implemented during the two case studies enabled dialogues on fostering designers' visual practices, which were captured using a variety of methods described in Section 5.4.4, p.94. The data captured during this research phase contributed to the data analysis and research findings presented in the next chapter.

7.2 Case Studies Methodology: User Testing Approach, Co-participants and Power Relationships

7.2.1 User Testing Approach

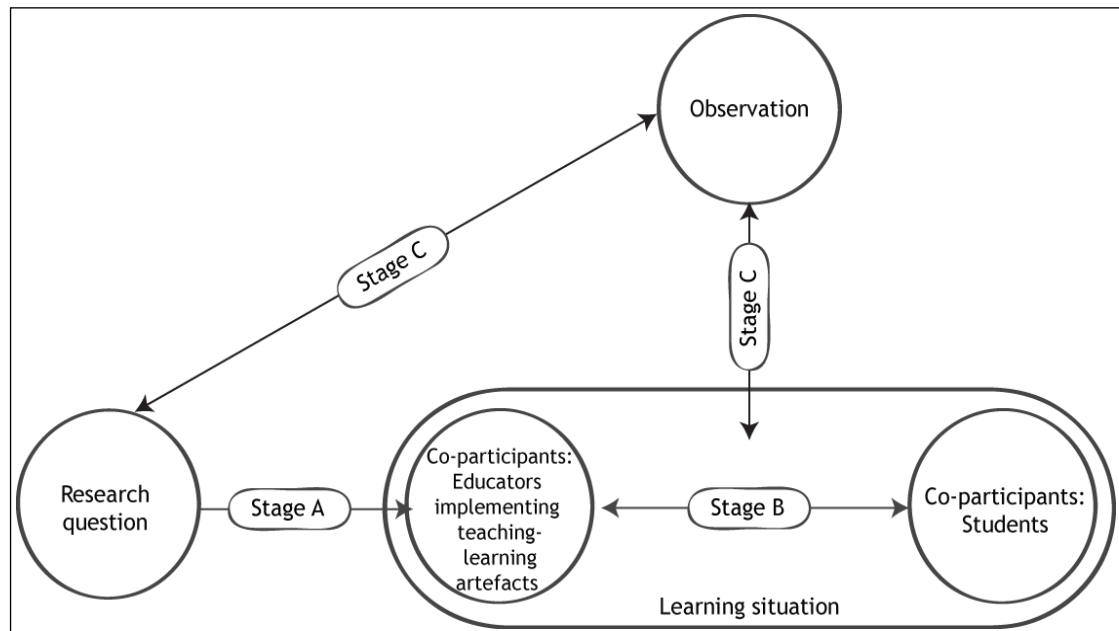


Figure 7.1: User testing approach observed during each case study

As mentioned in Section 5.4.3, p.94, Dumas and Redish (1999, p.22) have outlined five characteristics of usability testing:

- The usability of a product is improved
- The participants represent real users
- The participants do real tasks
- The researcher observes and records what participants do and say
- The data is analysed and problems are then diagnosed and redesigned.

These five characteristics were adapted to create the following stages of user testing (*see* Figure 7.1) for each case study:

- Stage A – Selection of the teaching-learning artefacts: In Figure 7.1 Stage A is situated between the research question and the co-participants. In terms of usability of the product being improved, in the case of this research phase the product was the knowledge captured from the debates that were prompted through the use of the teaching-learning artefacts. Such debates informed the understanding of how designers' visual practices can be fostered – the research question. The educators (the real users) were made aware of this intent, and then were asked to select teaching-learning artefacts designed in the previous

phase that would work with their personal teaching style and the requirements of their modules. Having made their selection, they were asked to consider how they would implement the selected artefacts within their teaching style and modules. From the outset, the role of the researcher as participant observer (McKernan, 1996, p.63) was made known to both educators and students involved in the case studies. That is, in each case the educator was observed leading the module and implementing the teaching-learning artefacts, while the researcher provided assistance if the educator requested guidance on the use of those artefacts. However when this occurred, every effort was made not to influence the learning process. Similarly, before the case study commenced, students were made aware that it was the researcher's intention to observe the educator's activities and therefore they would not be available to assist unless the educator requested it.

- Stage B – Implementation of the teaching-learning artefacts: The educators implemented the selected teaching-learning artefacts into their module. The case study presented below notes when the educator requested assistance.
- Stage C – Observation of the teaching-learning artefacts: Regular and repeated observations were made of each educator implementing the teaching-learning artefacts into their module. Following each observational session, debate on the fostering of designers' visual practices occurred through posing questions to the educator around their use of the teaching-learning artefacts. After the module was completed, further debates occurred during an interview.

7.2.2 Co-participants

A description of each educator's professional background has been presented in Section 7.3. To ensure consistency in the research context, the two design educators in these case studies were selected on the grounds of practicality and the fact that they were working with the first year Multimedia Design students who had participated in the design experiments. Hence, the educator would be in the same role as that adopted by the researcher during the design experiments: that of the students' primary tutor. Therefore the only variable that changed between research phases was the educator.

7.2.3 Power Relationships

The power relationships present in the case studies had a bearing on how the research was conducted and the research validity. An unequal power relationship existed throughout the case studies due to the educators' seniority to the researcher. To be precise, by participating in this research the researcher was requesting not only that the educator implement additional material

into their module, but also that they think and share how they taught and considered the effectiveness of the materials on their own teaching practice.

The issues of power were dealt with implicitly while conducting the research mainly through a negotiation process and a collaborative approach. In each case this power dynamic depended on the educator's relationship to the researcher and the individual's expectations. In the first case the educator was unknown to the researcher and although they initially showed willing, they were hesitant to fully engage with the teaching-learning artefacts until they had seen the value to their students. Therefore selection of the teaching-learning artefacts for use in the first case study did not occur as outlined above in Stage A of the user testing approach (*see* Section 7.2.1); rather it happened through an ongoing negotiation process. This process involved developing a collaborative environment where the educator felt able to ask questions and offer feedback. In the second case study the educator was known to the researcher and understood that the study would bring value to their students. Therefore a collaborative environment was already present and from the outset this educator was keen to engage with the research and select and plan how the teaching-learning artefacts would be implemented into their module.

To further develop a collaborative relationship, both educators were made aware from the outset that their knowledge and experience was extremely valuable to the development of the research and they were encouraged to incorporate the teaching-learning artefacts into their teaching practice in their own way. They were also informed that they would have the opportunity to review the written description of the case before the research was presented.

These power dynamics had a bearing on the external validity of this research phase. As the educator in the first case study was unaware of the research intent and was unfamiliar to the researcher, they provided an impartial opinion on the values and limitations of the teaching-learning artefacts. Prior association with the educator from the second case study enabled an open account of their involvement in the research. However this relationship may have influenced the feedback gained from this individual.

7.3 Case Studies

This section presents a narrative account of each case study, describing the educator's professional background, the project description, description of events and the educator's use of the teaching-learning artefacts along with a knowledge elicitation exercise. The knowledge elicitation exercise was carried out during the post-interview with each design educator to enable them to evaluate the use of the teaching-learning artefacts in relation to the fostering of designers' visual practices (*see* Appendix 3.1.3, p.382 for the full details of this exercise). The project brief issued to students by the educators in each case is located in Appendix 3.2, p.385. In addition, the schedule of studio events (including where the chosen teaching-learning artefacts were implemented) for each case study is situated in Appendix 3.3, p.391. The design educators had both chosen to implement the Learning Log and Sherlock Holmes Personas into their modules. In the second case study the Self-Evaluation Activity was also implemented.

7.3.1 Case Study One

Design Educator's Professional Background

The first design educator was a new member of staff on the Multimedia Design degree at Northumbria University, with a background in web and TV design as well as teaching experience of further education. Grasha-Riechmann's Teaching Style Survey⁴⁶ identified this educator's teaching style as being a blend of expert, personal model and facilitator (*see* Table 7.1). The expert is concerned with transmitting expert knowledge to learners, where the educator maintains their status as an expert to challenge the learners to enhance their competence. The personal model oversees, guides and directs through providing examples for students to follow. This educator demonstrated both these teaching styles through asking students to follow a six-stage linear design process⁴⁷. A facilitator guides the learner through asking questions and suggesting alternative directions. Studio observations revealed that the educator acted as a facilitator during teaching by questioning the learner, and had the ability to alter their style depending on how the students were progressing. This educator preferred to create a relaxed atmosphere when teaching, encouraging the students to learn through play, interaction and dialogue.

⁴⁶ Further information about the Grasha-Riechmann Teaching Style Survey (2002) is located in Appendix 3.1.1 (p.379) and 3.1.2 (p.381). Appendix 3.1.1 presents the questions used to determine teaching style, and Appendix 3.1.2 shows a full description of the Grasha-Riechmann Teaching Styles.

⁴⁷ This educator described the six-stage process as follows: 'The design process may use all equally, or some more than others, but an holistic approach will always use all 6. 1. Premise: the idea, the concept, initial thoughts, the germ of an idea, the "blue sky thought". 2. Research: primary and secondary source materials – simple as that. 3. Development: the input of the individual or group ideas, the convergence of the premise backed by research – the emergence of the idea as reality. 4. Prototyping: the alpha and beta builds – does it work out of the conceptual environment, are the developed ideas standing up? 5. Testing: so important – usability testing, stress testing – end user feedback can loop the process straight back to research and development. 6. Evaluation: Did it work? Does it work? Is it successful, has it achieved all the aims set out in the ideas stage?'

Table 7.1: Evaluation of the design educator's teaching style in case study one using the Grasha-Riechmann Teaching Style Survey (2002)

Design educator's teaching style				
Expert	Formal authority	Personal model	Facilitator	Delegator
4.25	3.25	4	4.125	3.375

A Project Description

This project ran over four weeks, with 1.5 hours of contact three times a week for forty-five first year Multimedia Design students, who were split into two groups (A and B). The project was incorporated into the module named Information Design, and conducted during semester two 2006/2007. Within this module students were required to select and then promote a local museum or exhibition. Their task was to create the identity, an interface for a kiosk at the entrance to the exhibition, information leaflet, map of the exhibition and appropriate signage (*see* Appendix 3.2.1, p.318 for the project brief). The project was assessed on four elements: sketchbook (Learning Diary), CD/DVD packaging, final outputs (exhibition, information, leaflet, map and signage) and final presentation.

Design Educator's Use of the Teaching-learning Artefacts in Their Module

The educator opted to utilise the Learning Log and the Sherlock Holmes Personas into their module. They had adapted the Learning Log in two ways: the first way was a preference to refer to the Learning Log as the Learning Journal or Diary, the second was asking students to incorporate it into their sketchbook. The educator explained the reasoning behind these decisions as follows:

I like them to do that [Learning Journal or Diary] without actually realising...I think it should just be implicit within the work rather than explicit... so you're turning pages of a sketchbook and there's writing! That's how any sketchbook should be. Notes in the corner of a book, as you're reading a book you might notice.

For the purpose of this module, the educator relaxed the format of the Learning Log, making it clear from the outset that they would listen to student feedback and, if it did not work, allow students the option to change it.

In the first week with group B, the educator had asked students to discuss and present their sketchbook work to the group. Students presented their work in a relaxed atmosphere sitting around the main table in the design studio. During the presentation the educator had asked them to consider why they had carried out their actions; to comment on their design process; how their ideas were going to be realised and also provide positive and negative feedback. The educator

asked the group as a whole to give feedback to their peers. However, students' responses were limited, i.e. commenting 'that is good'. In general in this first presentation, there was little interaction and discussion of research or ideas between students. When students did not respond and give feedback around the table, the educator altered the approach to lead the discussion. At the end of the session the educator asked students to record their process in their sketchbook, in the following way; 'could you record your thought process and stick what you have heard [in this studio session] in your sketchbook, so [that] I can see the flow of development, and comment as you go along?'

After the studio session the educator had observed that students were completing their Learning Log without realising they were engaging in this process, through regularly writing down what they had been doing. Although the educator was happy with the ideas students had presented, they felt: 'they [students] don't interact with each other and they are suffering because they cannot communicate with each other.' Consequently, following the presentation, the educator requested assistance in implementing the Sherlock Holmes Personas in the next presentation session to encourage communication between the students.

The second presentation session was a design critique with 20 students from group A. In the same way as the design experiments, at the outset of this presentation students were introduced to the Sherlock Holmes Personas and asked to use them as a guide to provide written peer feedback on the forms provided. Again, in the same way as the design experiments, after each presentation students were asked by name to read out their written feedback to their peers. It was observed that students were reluctant to tell their peers which Persona they were, but they did provide suggestions and questioned their design process. It appeared that, during this design presentation, the educator provided different types of feedback. This ranged from encouraging the students to focus on the design process; guiding individuals on what to look for; asking students to find more references to expand their ideas and asking questions that enabled students to reflect on their visual actions. After this studio session, the educator commented that the use of the Sherlock Holmes Personas in the presentation through requesting individuals to feedback by name had contributed to the 'group dynamic fail[ing]'. By this, I mean [that] the students withdrew and avoided you looking at them, as they didn't want to be chosen – this led to a lot of covert sniggering.' It was observed during the student presentations, that they had limited or no reflection in their sketchbook. The educator's response to this observation after the studio session was:

Well it should be there in their sketchbooks, just write it down like a constant stream of consciousness, just let it come out, even if it's a commentary on what you have done in the last couple of days, just write it down, because this is the only time in the academic environment that you will show your notebook publicly and gain comments on it.

In the fourth and final week of teaching, observation of tutorial sessions found that students were engaging in a range of reflective practices in their Learning Diaries, with most of them observing their work and reflecting on their visual activities (*see* Figure 7.2) and some reflecting on themselves on a weekly basis (*see* Figure 7.3).

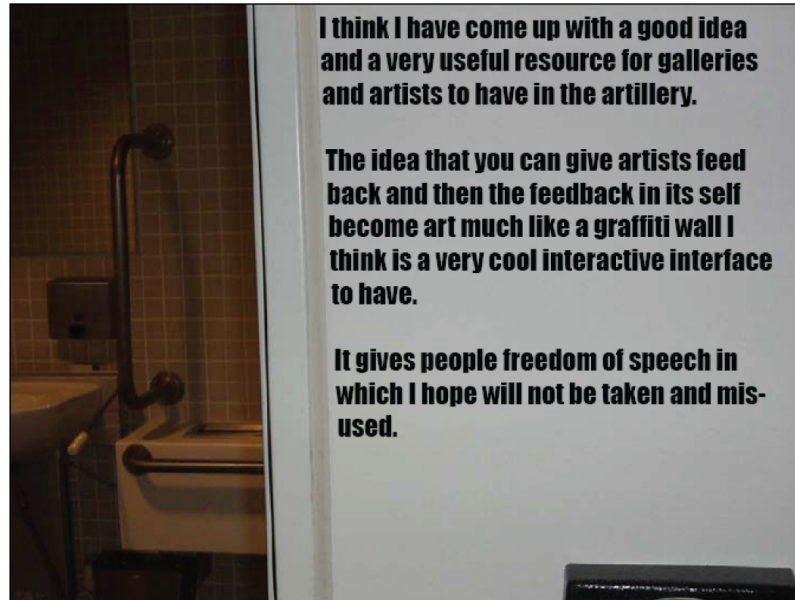


Figure 7.2: A page from a student's Learning Diary

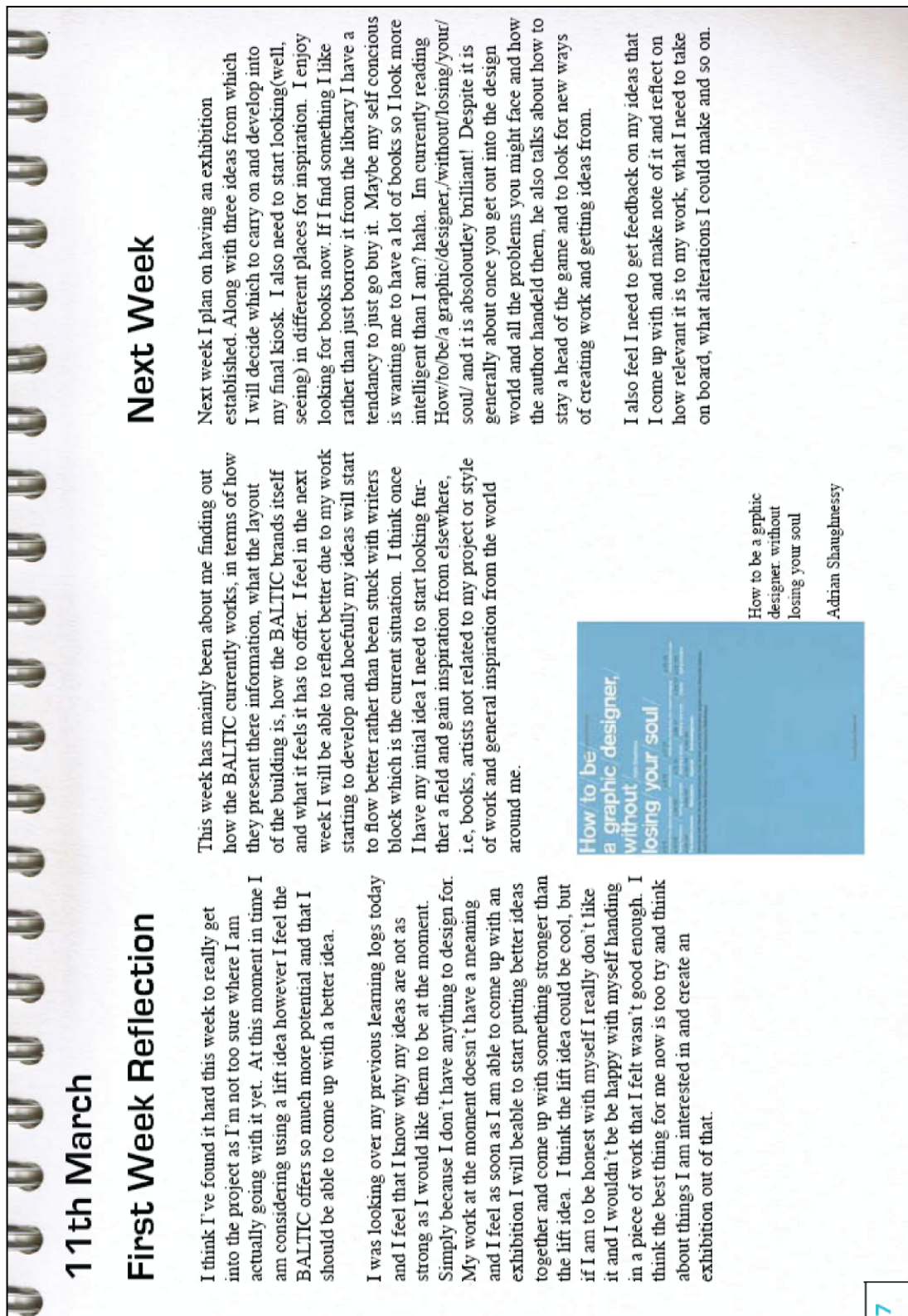


Figure 7.3: A page from a student's Learning Diary

During the final presentation, students presented their sketchbooks and their final outputs, on screen, to the group. The students were sitting around the main table in the centre of the room, with the Sherlock Holmes Personas and peer feedback forms in front of them. The educator used

the Sherlock Holmes Personas, but felt that this exercise should be conducted in smaller groups, as the previous presentation session had not worked due to the large number of students. The educator had decided to alter how the Sherlock Holmes Personas were used in the final presentation in two ways: The first change was that the educator did not re-introduce the Sherlock Holmes Personas at the outset of the critique, as they felt the students already knew them well and understood how to use them in this situation. The second way involved the educator asking the whole group to give feedback (instead of asking individuals by name) and encouraging them to write their comments on the peer feedback forms provided. All students appeared to be happy giving written feedback but were reluctant to give verbal feedback. When the educator provided feedback it was generally on the outcome of the design process. The Sherlock Holmes Personas and ways to improve learning were not discussed. Additionally, neither the educator nor the students commented on how they had reflected on their visual activities. After the studio session the educator was asked to reflect on the value of using the Sherlock Holmes Personas with the students:

Well again as a student I would not like to be pigeonholed, and I don't think they have liked that, but I think it's forced them to think about where they sit in the creative process, it focused them to think, almost pigeonholing themselves. I keep saying that no one is an island; you have to equate yourself with someone, you have three or four of them up here, and some are still at base camp, waiting to get up and get started, but they can see the mountain and work out where they are. In that sense they are really good.

Knowledge Elicitation Exercise – Evaluating the Use of the Teaching-Learning Artefacts in Relation to Fostering Designers' Visual Practices

Table 7.2 displays the results of the knowledge elicitation exercise conducted with the design educator after the module was completed. This exercise used Brockbank and McGill's (1998)⁴⁸ model of reflective learning to elicit current teaching practices and evaluate the teaching-learning artefacts in relation to the fostering of first year students' visual practices. Refer to Appendix 3.1.3, p.382 for the full methodological detail of this exercise.

⁴⁸ Brockbank and McGill's (1998) five dimensions of reflective learning are outlined in Section 3.3.1. In the same way as the content analysis, a sixth dimension: after action – reflexivity on visual practices was added in this schema as the overarching purpose of the reflective process in this study was concerned with enabling design students to reflect on and then develop their own visual approaches to engagement in a visual context.

Table 7.2: Knowledge elicitation exercise: case study one

Stage 1: Visualise where teaching-learning artefacts and activities are currently used in a first year studio to foster students' visual development:				
Brockbank and McGill's Reflective Dimensions	Week 1: Research	Week 2: Concepts	Week 3: Development	Week 4: Prototype and Presentation
6. After Reflection				
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action' (alone)				
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)		Tutorial		Tutorial Presentation
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)				
2. Reflection-in-Action			Tutorial Sketchbook	
1. Action	Sketchbook Design Document	Sketchbook Design Document		
Stage 2: Visualise where the selected teaching-learning artefacts had fostered students' visual development in the module:				
Brockbank and McGill's Reflective Dimensions	Week 1: Research	Week 2: Concepts	Week 3: Development	Week 4: Prototype and Presentation
6. After Reflection		Tutorial Learning Log	Learning Log Sherlock Holmes Personas	
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action' (alone)	Tutorial Learning Log Sherlock Holmes Personas	Tutorial Learning Log	Learning Log Sherlock Holmes Personas	Learning Log Sherlock Holmes Personas
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)	Tutorial Learning Log Sherlock Holmes Personas	Tutorial Learning Log	Learning Log Sherlock Holmes Personas	Learning Log Presentation Sherlock Holmes Personas
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)				
2. Reflection-in-Action			Tutorial Sketchbook	
1. Action	Sketchbook Design Document		Sketchbook Design Document	
Stage 3: Observation of differences between current teaching practice and the use of the teaching-learning artefacts in the module:				
All feedback – Learning Log or Tutorial obviously helps				

Stage one of the knowledge elicitation exercise asked the design educators to visualise the teaching-learning artefacts and activities they currently used in their teaching practices to foster visual development in the first year of undergraduate study. Table 7.2 indicates that the educator fostered visual practices through different teaching-learning artefacts (sketchbook and Design Document) and activities (tutorial and presentation). These artefacts and activities enabled students to record their visual actions as well as reflect on these actions with both tutors and peers. Stage two of this exercise asked educators to visualise where the teaching-learning artefacts they had incorporated into their module had fostered visual development. Stage two in Table 7.2 showed Learning Diaries and Sherlock Holmes Personas were placed in the fourth, fifth and sixth dimensions of reflective learning throughout the module. Therefore it may be implied that these artefacts assisted students to reflect on their visual actions with others, and then consider areas of

change to their visual approaches. In order to compare their current teaching practices to how they have taught in the module presented in this case study, in stage three the educator was asked to observe differences between stages one and two. In this case study, the educator had mainly observed that all feedback helps.

7.3.2 Case Study Two

Design Educator's Professional Background

The educator in the second case study had been teaching for a number of years on the Multimedia Design degree. Before this, their background was in fashion marketing followed by industrial and teaching experience. This educator was dominant in formal authority and personal model teaching styles (*see* Table 7.3). The formal authority style provides learners with positive and negative feedback, establishing clear goals and expectations. For example, clear, explicit goals were given to students outlining what was expected of them. Within the personal model style this educator provided learners with examples, establishing a prototype for how to think and behave. In this way she gave students an example to enable them to achieve the learning outcomes. This mixture of styles appeared to be learner-centred, developing a student through being motivating and enthusiastic. The educator preferred to develop learners through dialogue, which can be implied from the following comment from the pre-interview:

I think that my philosophy is that it's very much of a 2-way process with students; they come to you for guidance, and they come for you to be there, and they come, you know, because they like that anchor point.

Table 7.3: Evaluation of the design educator's teaching style in case study two using Grasha-Riechmann Teaching Style Survey (2002)

Design educator's teaching style				
Expert	Formal authority	Personal model	Facilitator	Delegator
3.625	4.5	4.25	3.125	3.25

A Project Description

The project ran over four weeks with 1.5 hours of contact three times a week. Forty-five first year Multimedia Design students were split into two groups, A and B. This project was conducted during semester two 2006/2007 and was incorporated into the module named Design Influences. In this module, students were asked to identify and report on influential trends (social, political, economic, artistic, cultural, style and fashion) that surround them in order to inform design direction, and then produce a two-page journalistic spread (*see* Appendix 3.2.2, p.388 for the project brief). The project was assessed on three elements: Sketchbook, Learning Log and a double page spread, 1500-word magazine article.

Design Educator's Use of the Teaching-learning Artefacts in Their Module

The educator implemented the Learning Log, Self-Evaluation Activity and Sherlock Holmes Personas into their module. They referred to the Learning Log as both a Learning Diary and Learning Log throughout the project, asking students to incorporate it into their sketchbook so they could reflect in their preferred medium. The educator wanted students to use a Learning Log to track their development by identifying their current position and areas where they might need assistance. In the brief, the educator placed thirty percent of each student's mark on the Learning Diary; so students would recognise the importance they were placing on this process. They would also understand the significance of reflection on their practice as they were being rewarded for it, as the educator explained:

With any sort of process it is insufficient to say 'do it just because it is good for you', there must be a reward for engaging in a process; you have to point out to them that this process of reflection is heavily weighted in terms of marking, as they could just see it as a piece of paper and if you say reflect on this piece of paper, they come to understand that their assessment of reflection is heavily weighted; and it shows the importance the tutor places on it. Also, they come to understand themselves through the importance of the mark.

The Self-Evaluation Activity was carried out in the first week of the project. Before introducing the activity with Group B, the educator had created a relaxed atmosphere, laughing and joking with the 10 students that had arrived for this studio session. The educator introduced this activity in the following way:

Go through your Learning Diary you have done and reflect using the Post-It notes. Basically what you're doing is looking at who [sic] you think you are, where you need to improve and what is obstructing you, based on your logs... You will be describing the importance part of your Learning Log. I will put you with a partner, you have to be able to sort of précis it to them instead of reading it all out. What I want is to write down where you are looking (surface stuff) and where you are actually seeing, or evaluating. You are looking for your strengths and weaknesses. Then I want you to think about a question for you to ask your partners:... Are you having the same problem as me? Where did you succeed, where did you not? How did you get around it when you got stuck? These are just a couple of questions you can ask the person you are partnered up with. Also on your Learning Log what I want you to do is say where you have been certain characteristics, because a couple of people this morning have been between two Personas. Does that make sense?

Then the educator started to go around the students individually, asking them to reflect on their last project, by considering what had helped or hindered them in their development; and where they had been looking and seeing. During this time the students appeared to be very quiet. In addition, as the educator was going around individual students, they wanted the educator to clarify what was involved in the project. The educator then put the students into groups of two, asking each group to discuss the questions raised about their learning, which they had developed from reviewing their Learning Log. At the end of the studio session, the educator gave out the feedback from the last

design critique about which Persona(s) they were. Then they were asked to write up a summary in their sketchbook to describe what they had learnt during this session and what they needed to improve upon. At the same time, the educator informed them that they would follow up on the results of the activity in the following week. Figures 7.4, 7.5, 7.6 and 7.7 show two students reporting on the Self-Evaluation Activity in their sketchbook.

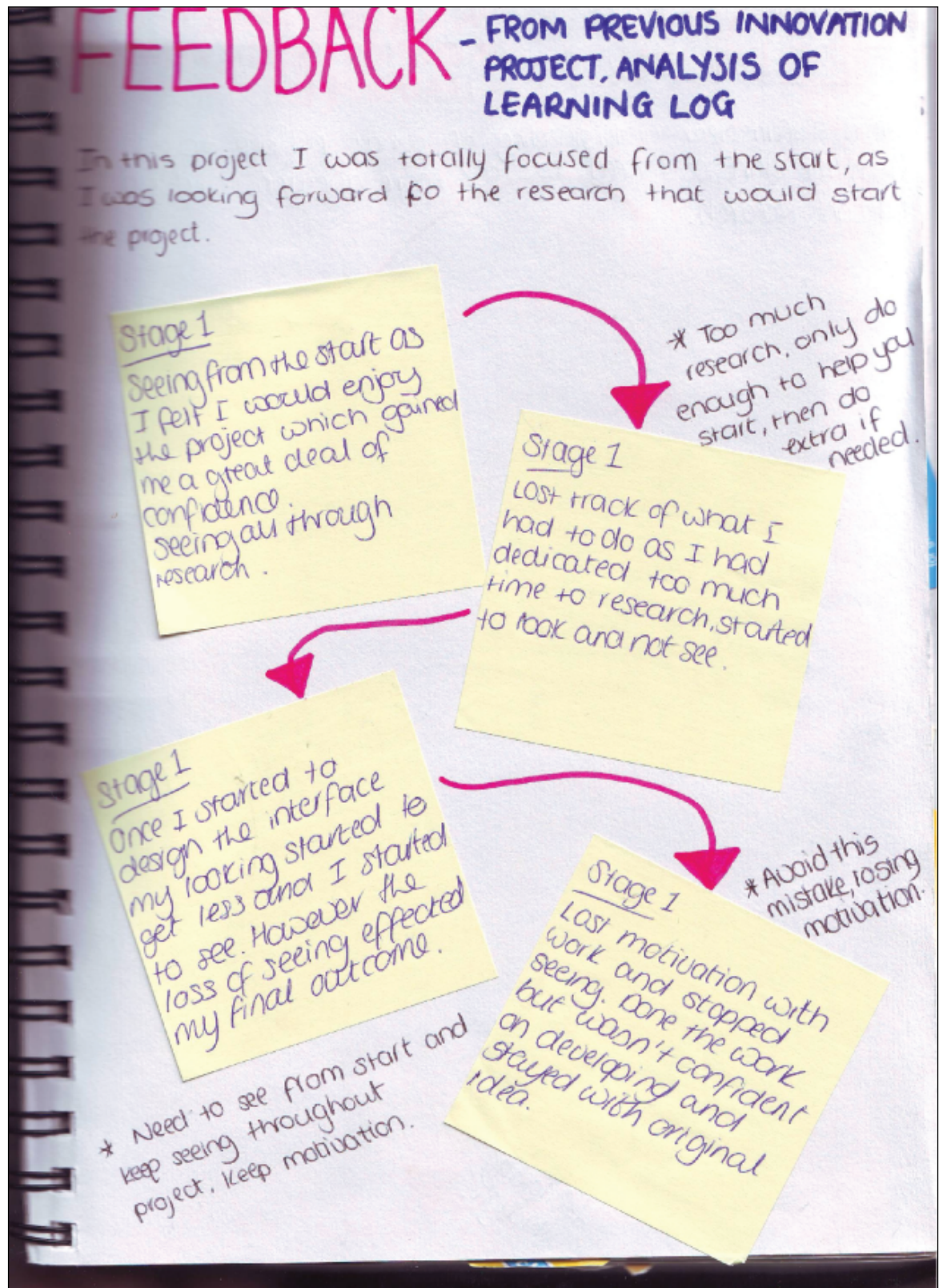


Figure 7.4: Pages from a student's sketchbook reporting on the Self-Evaluation Activity (Page one)

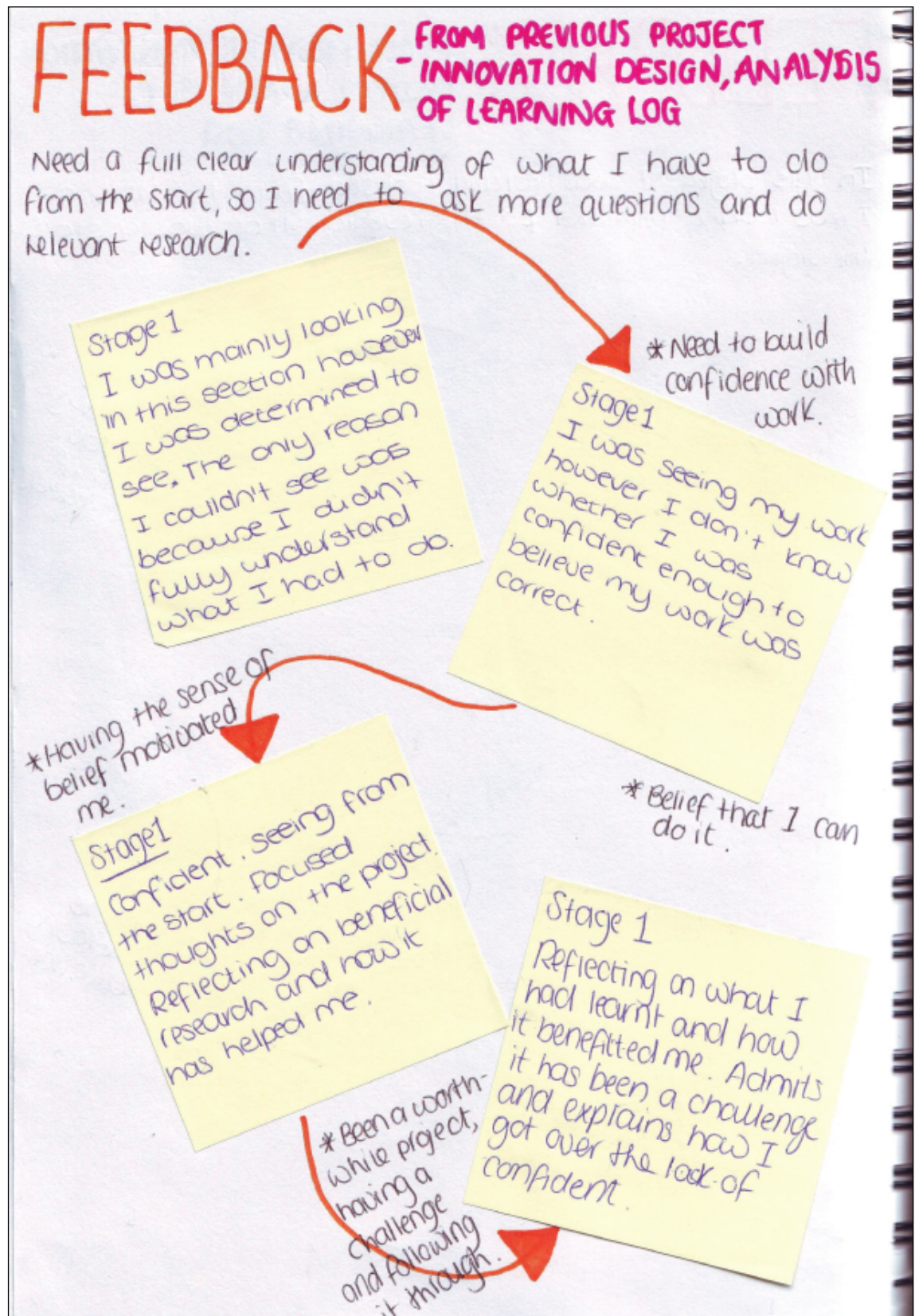


Figure 7.5: Pages from a student's sketchbook reporting on the Self-Evaluation Activity (Page two)

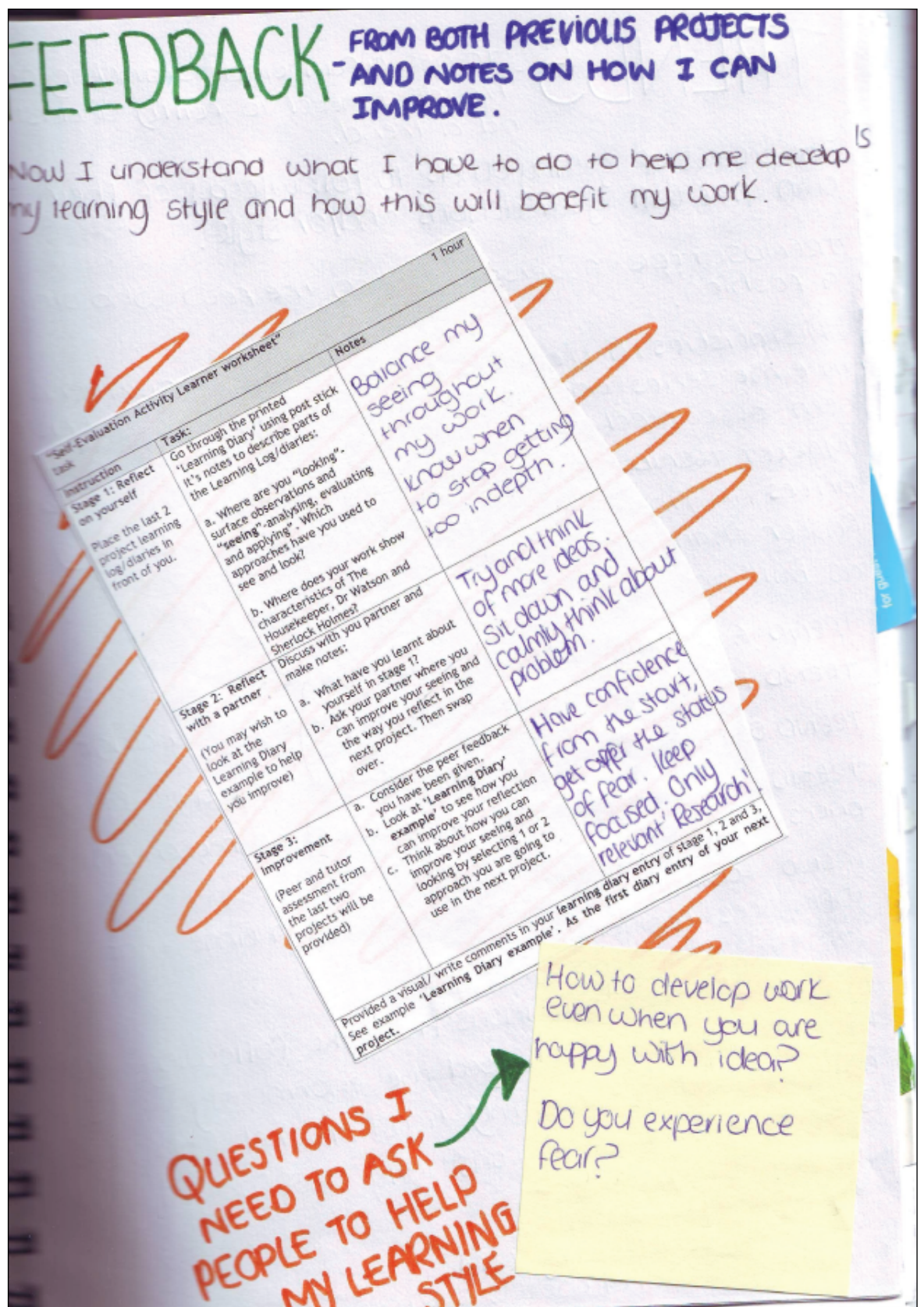


Figure 7.6: Pages from a student's sketchbook reporting on the Self-Evaluation Activity (Page three)

Learning Log 1

Do:

I CARRIED OUT THE SELF EVALUATION FORM, WHICH WAS DIVIDED INTO THREE STAGES, IN STAGE ONE I FOUND THAT I HAD TRAITS OF SHOLLOCK HOLMES IN THE WAY I CONTINUED TO CARRY OUT RESEARCH AT THE LATTER STAGES OF THE PROJECT. I WAS THEN PAIRED WITH SIMON, WHO ALSO HAS TRAITS OF SHOLLOCK HOLMES, WHO THOUGHT HE NEEDED TO ACQUIRE AN UNDERSTANDING OF ANY WEAKNESSES IN HIS LEARNING. IN STAGE THREE, I RECEIVED FEEDBACK FROM MY PROJECTS. I SHOWED TRAITS OF SHOLLOCK HOLMES AND FOUND THAT I NEEDED TO EMPLOY MORE GUIDANCE FROM OTHERS. SO FAR IN THIS PROJECT I HAVE RESEARCHED HOW TRENDS START, GLOBAL WARMING AND SOME 'ECO TRENDS'.

Reflect:

FROM MY FEEDBACK, I HAVE FOUND THAT I NEED TO EMPLOY GUIDANCE FROM OTHERS IN ORDER TO HELP ME 'SEE' WHILST I AM WORKING. I WILL DO THIS BY TALKING TO MY PEERS ABOUT MY IDEAS AND TRY TO RECEIVE SOME FEEDBACK. AS FAR AS MY WORK IS GOING FOR THIS PROJECT, I HAVE FOUND MY INITIAL TOPIC FOR MY ESSAY/PIECE, WHICH IS GLOBAL WARMING, WHICH, ALONG WITH SOME 'ECO TRENDS', HAVE RESEARCHED, BUT I FEEL THAT I NEED TO LOOK AT, RESEARCH, AND DECIDE ON MY THREE TRENDS TO WRITE ABOUT.

Plan:

FOR THE NEXT WEEK, I PLAN TO CARRY OUT RESEARCH INTO TRENDS AND HOW THEY ARE DEALING WITH GLOBAL WARMING, WITH MORE MAINSTREAM TRENDS SUCH AS FASHION, TECHNOLOGY AND MOTOR VEHICLES TOP OF THE AGENDA.

I WILL CONTINUE TO ASK PEOPLE ABOUT MY WORK IN ORDER TO GAIN SOME VALUABLE FEEDBACK AND TO HELP ME 'SEE' MORE.

Figure 7.7: Pages from a student's sketchbook reporting on the Self-Evaluation Activity using the Learning Log format

Upon reflection, after this studio session the educator found the exercise ‘beneficial’ and ‘constructive’ for the students, and felt that it fitted well alongside what they would otherwise have been doing at this stage in the design project, i.e. clarifying what was involved. After the studio session, the educator said that they would have liked the information on the exercise to be simplified, as they felt that it had to be demonstrated before they could carry out the activity:

Once I heard you say it again, it clicked... It was not as clear-cut as it was written on the guidance you have provided. Had it been a Power Point slide, saying one take your form from the box, two engage with it and look at your own Learning Log, and three write 5 things on stickies about how you have been looking and seeing. Then I would have got that. Then we will match you up with someone, where you will discuss A, B and C and finally for next week this is what I want. I think it does make sense because we have been through it now and I understand it completely. But at the time I am relying on them to know what I am saying... do I know that and yes they did because they had been through it with you. There is an element of that. If you had said to me that you put the format together I would have done it in very simple ABC language for me to have grasped it.

In the following week, the educator was observed asking students to show their Learning Logs, to enable them to talk through their processes and questioning them about their work and learning. In addition, the educator used the Sherlock Holmes Personas in an informal manner, to reflect on their presentation and to help in the development of learning contracts with individual students, with the intent of developing students’ engagement with the project.

In the final presentation, 15 students from group B were seated around the main table. The educator introduced the Sherlock Holmes Personas to the students in the following way at the start of the design critique:

We are going to run the design critique with the Sherlock Holmes Personas today, a little differently from what you have been used to in the past, so [that] can you listen up. So have you all got the peer assessment sheet and can see the characters in front for you? What I want you to do is give written feedback to your peers on this sheet, using the characters, and then at the end of the crit what I want you to do is cut out the feedback and give it to that person... Then... I want to you write a summary at the back of the sketchbook using this feedback, then consider an area for improvement, you can discuss this with your partner if you need to. When your work is being marked, we will read what you have written, and agree or disagree. If we agree, we agree that you should work on that improvement, however if we disagree we will write additional feedback, for you to consider. Does that make sense?... Also when a person is presenting I want you to think about a question you would like to ask them.

After students presented their work, the educator asked them to explain a bit more, or to describe further where they had been looking and seeing, or to describe changes to the way they had been learning. The educator then asked students to direct their questions to the person presenting their work; however, they were not asked directly by name. Some students were happy to engage and asked their question. At the end of the presentation, the presenter received peer feedback. The

presenter then used this feedback to write a summary of their working practice and areas for improvement. The educator asked the students to use the Sherlock Holmes Personas to select an improvement (see Figure 7.8 for an example). The design critique was over in 50 minutes, the shortest time it has ever been completed when the Sherlock Holmes Personas were used. This was significant as, until this point, the design critique had taken much longer when using the Sherlock Holmes Personas, and running it in this manner was an effective and efficient use of both the students' and educator's time.

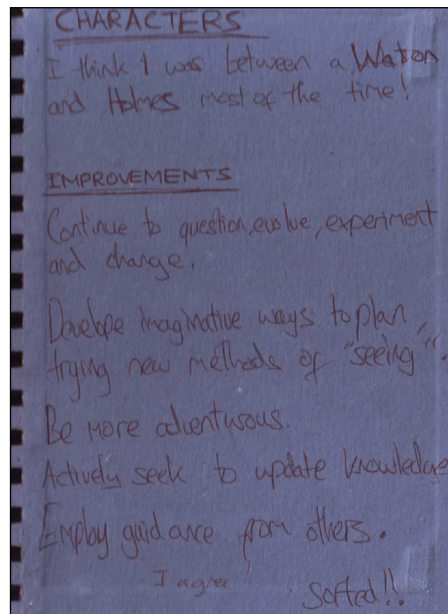


Figure 7.8: A page from a student's sketchbook reporting on which Personas they perceived themselves to be like and improvements they wished to make, which was guided by the Sherlock Holmes Personas improvement section

Knowledge Elicitation Exercise – Evaluating the Use of the Teaching-Learning Artefacts in Relation to Fostering Designers' Visual Practices

Table 7.4 presents the knowledge elicitation exercise conducted with the design educator after the case was complete. Stage one of the knowledge elicitation exercise shows that the sketchbook, Design Document, tutor feedback, presentation, peer assessment, Google search and retrospective research were central to the educator's teaching practice when fostering first year students' visual development. More specifically, tutor feedback, presentation and Design Document enabled reflection on visual actions to occur, leading to improvement in the students' visual practices. Stage two in Table 7.4 showed the educator had placed the Learning Diaries, Sherlock Holmes Personas and Self-Evaluation Activity throughout the entire reflective dimensions; thereby showing that these teaching-learning artefacts contributed in assisting students to reflect on their visual actions and change their visual practices. Stage three of the knowledge elicitation exercise

in Table 7.4 shows the educator describing how the teaching-learning artefacts had provided students with aspirational aims and the ability to see how they and their peers are developing.

Table 7.4: Knowledge elicitation exercise: case study two

Stage 1: Visualise where teaching-learning artefacts and activities are currently used in a first year studio to foster students' visual development:				
Brockbank and McGill's Reflection Dimensions	Week 1: Research	Week 2: Concepts	Week 3: Development	Week 4: Prototype and Presentation
6. After Reflection	More refined: Google search Sketchbook Design Document	Design Document	Design Document	
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)		Tutor feedback		Tutor feedback
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)	Retrospective Research		Design Document	Mock-ups interim crits
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)				Interim presentation Tutor presentation
2. Reflection-in-Action			Peer assessment Tutor feedback	
1. Action	Sketchbook Google Design document			
Stage 2: Visualise where the selected teaching-learning artefacts had fostered students' visual development in the module:				
Brockbank and McGill's Reflection Dimensions	Week 1: Research	Week 2: Concepts	Week 3: Development	Week 4: Prototype and Presentation
6. After Reflection	Learning Diaries Sherlock Holmes Personas Self-Evaluation Activity	Learning Diaries	Learning Diaries	Learning Diaries Sherlock Holmes Personas
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)			Learning Diaries	Learning Diaries Sherlock Holmes Personas Self-Evaluation Activity
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)	Self-Evaluation Activity		Learning Diaries Sherlock Holmes Personas	Learning Diaries Sherlock Holmes Personas
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)	Learning Diaries Sherlock Holmes Personas Self-Evaluation Activity	Learning Diaries	Learning Diaries	Learning Diaries Sherlock Holmes Personas
2. Reflection-in-Action	Learning Diaries Sherlock Holmes Personas Self-Evaluation Activity			
1. Action	Learning Diaries Sherlock Holmes Personas Self-Evaluation Activity			
Stage 3: Observation of differences between current teaching practice and the use of the teaching-learning artefacts in the module:				
I feel that the teaching tools provide students with an aspirational aim; they want to be there. Also, seeing others achieving that target could provide a sense of competitiveness: as they use it through the levels they'll become more used to doing it quickly an intuitive process that they'll see the benefit of. Students need to have self-assessed aims (goals that they can reflect on).				

7.4 Overview of the User Tests

Over the course of two case studies the teaching-learning artefacts devised in the previous phase were user tested with educators to promote dialogue around developing and fostering designers' visual practices. The intent was to present an account of the research context in which the data was obtained through presenting a thick description of the case studies, thereby contextualising the research findings in Chapter 8.

Chapter Eight: Data Analysis

8.1 Introduction

The purpose of this chapter is to move towards generating a response to the research question. This intent has been achieved in two ways; first by presenting relevant data segments for each major pattern identified as enabling or impeding each component of the framework for analysis.

Description and discussion of the patterns, led to the study's findings – propositions of descriptive statements portraying the development and fostering of designers' visual practices.

8.2 Data Analysis Process: Framework for Analysis

The framework for analysis originated from the design framework in Table 5.1, pp.90-1. It contains four components: a sociocultural approach, a shared understanding, reflective articulation and critical questioning of visual practices (*see* Figure 8.1). Each component provides a classification of the learning attribute(s) and process(es) of fostering designers' visual practices. This classification incorporates the sub-aims of this study:

- To describe the learning attributes involved in the development of designers' visual practices.
- To determine processes used to help foster designers' visual practices.

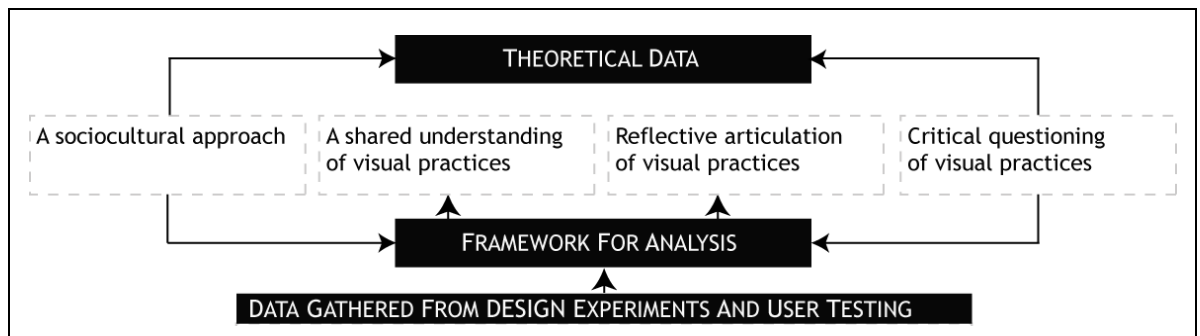


Figure 8.1: Framework for analysis

The collected data in this study were gained from the design experiment: reflective diaries, analytic memos and semi-structured interviews with the subgroup of co-participants (students and supporting module tutors). In the user testing phase, data methods used to capture these dialogues were descriptive observations, post studio session reflections, reflective diaries and semi-structured interviews with the design educators. Section 5.4.4, p.98 described the treatment of the data that generated the patterns presented in this chapter, under each component of the framework. This chapter presents an overview of where patterns had occurred in each case, and draws conclusions in the form of descriptive statements portraying the development and fostering of designers' visual practices from the data. Therefore the classification of each component guided the development of theoretical knowledge.

8.3 A Sociocultural Approach

This section presents descriptions and relevant data segments for each major pattern identified as enabling or impeding a sociocultural approach; the first component of the framework for analysis. The patterns presented below are discussed at the end of this section to clarify how the learning attribute and process associated with a sociocultural approach have been informed by the data analysis. Table 5.1, pp.90-1 outlined a definition, learning attribute and a potential process used to foster designers' visual practices through a sociocultural approach. A sociocultural approach was defined as everyone has his or her own visual practices, which they form through social and cultural means. The identified learning attribute of a sociocultural approach was reflection. That is, development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices. The process of enabling a sociocultural approach involves facilitating social interactions in different learning situations (i.e. design critique, conversations with tutors and peers) can enable reflection on visual practices. During the two research phases, the identified learning attribute and process were explored. Three processes used to help enable reflection on visual practices emerged from an examination of the data gathered from the two research phases: informal social interactions and dialogues; enabling communication; and internalisation of the communication tools. One pattern emerged that impedes a sociocultural approach: students' perceptions of peer feedback. All the patterns that emerged are presented in Table 8.1 that shows where the data were gathered from each research phase.

Table 8.1: Patterns that were found relevant to enable or impede a sociocultural approach

	Research Phase One: Design Experiments			Research Phase Two: User Testing	
	Case 1: The first student project	Case 2: The second student project	Case 3: The third student project	Case 4: Case study one	Case 5: Case study two
The following patterns were identified that enabled the development of designers' visual practices through a sociocultural approach					
Pattern one: Informal social interactions and dialogues				✓	✓
Pattern two: Enabling communication	✓	✓	✓	✓	✓
Pattern three: Internalisation of the communication tools		✓	✓		✓
Patterns identified that impeded the development of designers' visual practices through a sociocultural approach					
Pattern four: Students' perceptions of peer feedback	✓	✓	✓		

8.3.1 Data Shown to Enable a Sociocultural Approach

What follows is a description and relevant data segments of major patterns identified as enabling a sociocultural approach.

Pattern one: Informal social interactions and dialogues

This pattern highlights data segments from the analysis that describe the learning environment where students are enabled to reflect on their visual practices. The educator creates an environment for informal social interactions to enable dialogues between students and themselves. In this environment, the design educator facilitates, guides and nurtures individual development.

The following quotes captured educators' descriptions of setting up the learning environment to enable informal social interactions and dialogues:

Can you describe your teaching style?

I suppose it's quite relaxed, but I give people enough rope – they can either hang themselves or build a hammock (Educator – case 4).

How do you conduct the lessons?

I don't have a structure. I have a vague lesson plan, each session has to cover something and stick to that. But as long as I cover the point. It could take five minutes, it could take three hours. But there's no structure, because there's more interest that comes out of talking (Educator – case 4).

In a studio setting how do you see yourself as an educator?

I think probably, I try to motivate. I don't know sometimes whether I hope it's by osmosis, or by me just being there and being sort of enthusiastic about it, and that that will somehow come across to them that they'll... my enthusiasm will be catching, I hope so, but I know it's not always the case. I guess I'm realistic; realistic about people's abilities. I hope I'm motivating and memorable, and that I'm probably lenient as well (Educator – case 5).

Both educators commented that they would like to encourage more social interactions and dialogues between students in the design studio:

How would you like to see the classroom set up?

I would have more tutorial space, more circular, more interaction with each other, more discussion (Educator – case 4).

In an ideal world, they'd all come in...they'd sit and talk; they wouldn't use the computers. I don't want them to use the computers, only for the final outcome of the project. Because I want them to talk and I want them to engage, and I want them to do that (Educator – case 5).

In the design studio the educator described their role as a facilitator, guide and nurturer of individual development:

In the studio setting, how do you see yourself as an educator?

A facilitator really. It changes. I mean I tend to analyse the group dynamic in the first week so I can get to know where they are (Educator – case 4).

What makes you tick as a teacher, what makes you want to enable learning?

I think that my philosophy is that it's very much of a two-way process with students; they come to you for guidance, and they come for you to be there, and they come, you know, because they like that anchor point. Maybe it is down to the student finding their way. In a way for them to reflect upon the things that they are interested in; if they're interested in graphics or typography. So, I guess my philosophy on teaching to sum it up would be that we're here for a particular reason, and it's to guide I think and to teach (Educator – case 5).

I think it's very much a maternal nature I think, you know it's very much a mothering, nurturing side, I think, that you have. I think you've got to care, and I think I care and I

care about their experience. I like to think they've learnt something with me, even just through really engaging them in a daft way or whatever (Educator – case 5).

Pattern two: Enabling communication

This pattern emerged to describe the benefits of enabling communication to foster designers' visual practices during the critiquing process. Communication tools provided common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. Feedback assimilated through the communication tools heightened an individual's awareness of their own and others' visual practices, enabling self-reflection.

In the critical viewing exercise in the first case study, students found a discussion of looking and seeing enabled communication, resulting in sharing of viewpoints and developing awareness of visual engagement in general and during their project:

What was your experience of the critical viewing exercise?

It makes you think in different ways, that was when we were looking at that. Like, I never really... just what you subconsciously think when you're driving a car, you just don't realise that until we did that exercise. And the same with the, the taking a picture, you don't know like you're focusing on what you want to take the picture. It's good seeing what other people had said with the different questions that they had come up with (Student 9 – case 1).

That was good because everyone's got a different point of view and it was good to get all those points of view out and jot them down so you've got a range of everyone's views. Then you can develop your own point of view; as well you can develop that further in order to find the answer to what you're looking for really (Student 2 – case 1).

Confusion. Obviously I didn't ... before that I didn't know the difference between it. It's just like, opened my eyes to what the difference is. I thought it was the same thing. Is it just seeing, or just taking a glance at it? And...but obviously I will try now to look at things differently. Examine things; evaluate things, just look for inspiration, analyzing other people for it (Student 1 – case 1).

It made me more aware of things, like how I personally felt, like I see things or if I look at things, and like especially when I became more aware of like just going and like taking a photograph and driving there, and driving you just do it 'cause you have to, and you're more aware of what's in front of you and like the surroundings when you're taking a photograph; everything in that like frame matters and is important. And then... I could relate that back to when...just doing, just doing work; it's more, everything is important rather than just the name for the client, and I think it helped me, when creating my images, to think about that (Student 8 – case 1).

I wasn't expecting to do it, but it did help me, it made you have to think about things more. A kind of challenge, it seemed to challenge; everyone I think was a bit kind of taken aback by actually getting asked what things meant and I think like...things like look, like looking and seeing, you don't tend to think about them as different things, but when you're analysing deeper then they are very different, and I think it made people think more about what they were doing in work as well (Student 7 – case 1).

The Sherlock Holmes Personas enabled a common language during the critiquing process, facilitating students to identify and articulate improvements to their peers, and to self-reflect on their visual practices. The following viewpoints captured the effectiveness of this process of enabling communication through a common language:

How do you feel about using the characters to give feedback to other people?

I suppose if you understand all the characters, it's easier to look at people's work, like how much work they've done and processes they've gone through, if they're a certain character (Student 1 – case 3).

In terms of an evaluation tool I think it's quite important because it gives the person a more in-depth way of being able to evaluate someone's work, rather than being very vague. To consider how that person's working, rather than just looking at their work and saying this and that, you can actually evaluate them and see how they got to there (Student 4 – case 3).

When I was critiquing other people's work it was useful to me to get across how I saw their work (Student 7 – case 3).

It tells you what you need to help you develop the concept, to make it better than what you've got. It needs feedback from other people so they can tell you what they think you're at, 'cause you can just look at it and think you're Sherlock Holmes, but you're not. But if you get told from other people what you are, you can work out what you need to improve on to help bring it up. And if you have feedback again you can see if you've done that (Student 9 – case 3).

Well because it highlights the areas which are strong and which are weak. You know, if you're a cleaner and you don't go like oh, why am I a cleaner? Thing is, if you call someone a cleaner then they're going to know that they're that person anyway. So it can be quite good, because if they just sail along and went "I'm getting like a bronze/silver here", what would it mean? A colour or a number doesn't really have that much viscosity compared with a character that has its definite personality traits. So yeah, if they don't take it on board, then that's their problem, but I can see how it would be useful to highlight to them what is required (Student 11 – case 3).

Yeah, it's more analyzing myself and feedback from everybody else helped us. They understand who we come closest to (Student 1 – case 3).

It's effective because you can see from a different point of view. Same with me, if it was... if I had been given it, I might... because obviously everyone's going to have a strong opinion about what they're doing, and if other people can put across points for maybe

slight improvements or things that aren't working, then... you're able to look back and maybe think a bit more about it (Student 4 – case 3).

What was your experience of the Sherlock Holmes Personas?

The characters, they can see negative traits about their work, how they're working, and they can see positive traits about how they're working, and they can easily see you need to do this to just get a little bit further on. So I think, I think that comes out more in the characters and in the actual physical feedback (Educator – case 3).

I think it really worked for the students, it gives them a framework to operate from, and it made the crit easier, in a way. And because, even the Mrs. Hudson ones, which you think Oh, nobody wants to sort of tell someone that they're Mrs Hudson, it kind of made it easier for them to deliver feedback. Because it's, let's say like for a crit, even the third years I see that they're very, they're very, very scared to deliver negative feedback because it's forcing them to come up with their own words, and they struggle how to say that's really not very good. Nobody likes doing it, they're still complaining about it. Whereas this, it's like, it almost allows them to give feedback without feeling in a way that it's, that they're being the bad guy. It's almost kind of it's giving them something to hide behind. It's like, ok look I can be honest and tell you that you're actually Mrs Hudson, and I think that really... also because the characters give them positive things that they can do to improve, you also give the students the ability to say you could do this to be better. So I think it's equipping them with the, with the, the means to give feedback in a way that they would really struggle without (Educator – case 3).

I think it's forced them to think about where they sit in the creative process, I keep saying that no one is an island; you have to equate yourself with someone, you have three or four of them up here, and some are still at base camp, waiting to get up and get started, but they can see the mountain and work out where they are. In that sense they are really good (Educator – case 4).

I think the very first lesson I sat in I would not have believed it, you turn around and ask [student name has been removed] What do you think? It was straight away... Where the characters make it a very comfortable way to take it on board, where the characters make it an easy way, maybe you can slightly distance themselves from the negative criticism initially, yet it still fed through, it is also like the character is getting the criticism whereas I am. But it is so direct, and it slightly dresses it up in this characters thing, so I am really impressed with their ability to give it and receive it (Educator – case 3).

They're doing it now in a more structured fashion: "I did this because", they're thinking about how they got through the journey. Their vocabulary is getting better (Educator – case 4).

During the critiquing process the Sherlock Holmes Personas provided a common language that facilitated educators to identify improvements to students' visual development. The following data segments captured this observation:

What was your experience of the Sherlock Holmes Personas?

Absolutely fantastic in terms of having a clear understanding of the students. The characters make it really, really easy to identify where the student and, you know... what problems they've got and where they need to get to move on. It just gave, I think as I was saying to you, it gave me like a greater understanding of the students and where they're at (Educator – case 3).

I'm teaching the third years final project at the moment, and yet I'm still finding my way with them, I'm still trying to figure out what is up with them. Whereas with the first years, through the characters, I can look at any one of them and totally understand, I know exactly who they are. I've got a better understanding of the students in first year after three weeks of teaching than I have of the third years after two modules (Educator – case 3).

It's given me more specifics about how to enable reflection, and help them on the journey. (Educator – case 4).

The educator from the fifth case has summarised the impact on students' visual development through enabling communication:

I think what you've introduced... what you've formalised, what we I guess had hoped would happen by osmosis, by feedback, to formalise that and write it down, how you're feeling or whatever. And making them engage with others, and I think in the first year there's probably not enough of that going on. I think the first year needs to become more of a foundation course in a way, and not just of the creative side, but with the engagement and our seeing rather than your looking. I think for each project it is just that sort of reflection on what they've learnt and of course each of your Dr. Watson or Sherlock Holmes or whatever, can be very different for each project that they're doing, rather than this is me as a whole. Although people probably do think, well actually, I am like that. But certainly with this project I was the hound, or whatever, or "This project I am Sherlock Holmes" (Educator – case 5).

Pattern three: Internalisation of the communication tools

This pattern emerged to suggest the potential influence that the communication tools have on enabling students to direct their visual practices. The data suggest that students internalise the common languages that the communication tools provide, enabling the observation of visual actions, and consideration and articulation of future visual practices.

Having experienced the terms looking and seeing in the Critical Viewing exercise, and the application of these terms in the Sherlock Holmes Personas, it was observed in the data that students had developed an understanding of these common languages, and could apply this understanding when observing current visual actions and thinking and articulating future visual actions.

Tables 8.2 categorises students' responses to: what is your current understanding of looking and seeing? This categorisation demonstrates that students have a common understanding of the terms looking and seeing and mainly applied the terms to describe aspects of visually engaging with their work.

Table 8.2: From interviews conducted following the second and third student projects students' responses to: What is your current understanding of looking and seeing? were categorised into looking and seeing

Case 2 – Second Student Project	Case 3 – Third Student Project
Students applied the term looking to describe aspects of visually engaging with their work	
Looking is...	Looking is...
Take it at face value (Students 6 and 12). Scanning (Student 5). Glance (Student 1). Surface observation (Student 3). Taking a picture (Student 7). Just gathering pictures (Student 10). Not really developing and understanding (Student 2). Having a look, this is kind of on autopilot (Student 10).	Glancing at it (Student 1). Scanning (Student 5). Seeing things on the surface. You don't really understand it, you just look at the visual as it is. You don't think about what it means and that kind of thing. (Student 7). Research is looking at what you've been set (Student 9). Scanning over and image and things like that. (Student 10).
Students applied the term looking to describe aspects of how they had visually engaged in a project	
Looking is...	Looking is...
–	Where you overlook everything that you've done (Student 2). Getting an idea and then proceeding with it, and not asking yourself why (Student 4).
Students applied the term looking to describe aspects of visually engaging with their work	
Seeing is...	Seeing is...
Seeing it actually developing it further (Student 4). A breaking apart and looking in depth (Student 3). Analyzing (Student 5 and 8). Taking it apart (Student 5). Understanding (Students 2, 3 and 7). Meaning (Students 6 and 10). Read the research and take that into account and do something from it (Student 9).	Looking deeper into it, what emotions it portrays and things like that (Student 1). in-depth (Student 5). When you see something you like you consider it and see what was the message behind it (Student 7). How you can take stuff from the research and develop concepts from it (Student 9). Breaking it down what it means (Student 10).
Students applied the term seeing to describe aspects of how they had visually engaged in a project	
Seeing is...	Seeing is...
About understanding and analysing what you're doing and how you could like...seeing How you can improve, when at the same time actually doing it (Student 2).	Breaking down everything you've done and trying to come up with improvements (Student 2). Understanding why it's there, what it means what ideas you can maybe get from it. (Student 6).

Students' had applied the terms looking and seeing to observe and consider their visual actions when asked the questions: 'When have you been looking and seeing?' and 'How would you like to

improve?’ following the second student project. Students used the terms looking and seeing to observe and consider their visual actions during the project and identify areas for improvement in different parts of the design process:

How have you developed your looking and seeing in the last project?

Yeah, I think I did all the looking and seeing bits at the beginning when I was coming up with the ideas and then when it got to the actually creating it, I just had to kind of get on and do it when I was doing the research. When I was doing the looking and seeing, I was really looking at what things meant and how I could use them and that kind of thing. But towards the end of the project I didn’t have time to do that. I was just getting on and making it (Student 7 – case 2).

Looking back on the last project, how do you feel you need to improve your looking and seeing?

Less looking. Just grabbing images off the net and just saying “ah, this is good”. Just going in depth like and saying why I like it and how could I use it. Seeing would really help (Student 3 – case 2).

I think I need to improve my seeing from when I’ve got quite a bit of research and it’s a new project, so... I need to see from the research what I actually need to put into the concept that I’ve done and other parts I could put it in and make it better. Definitely research. I see a lot more than I look (Student 9 – case 2).

Maybe be more open, think outside the box even more. I definitely think looking further away from what I’m just doing would have helped. Studying a lot more academic work maybe, a lot more books to look at, yeah, I looked at quite a few books for this one. But for the last one there were only one or two books that were really like relevant to what I was doing, so I spent more time looking for actual research, well not research, but actual academic stuff. I could possibly improve with things like that (Student 8 – case 2).

Following the third student project when asked the questions: ‘Which character did you think you portrayed in the last project and why?’ and ‘How do you need to improve your looking and seeing?’ students applied the terms looking and seeing and the Sherlock Holmes Personas to observe and consider their visual actions:

I was looking and wasn’t seeing. I just got my ideas, my research, I just looked at certain things, didn’t really go in depth...which I have done on earlier projects (Student 3 – case 3).

I need to do more seeing in my research. Look more in-depth into what it is I’m doing (Student 2 – case 3).

Probably try and start seeing from the very beginning. You know sometimes it’s a bit harder, but I’d like to be able to do that constantly from the very start, all the way through (Student 8 – case 3).

I was going to be Dr. Watson because I didn't realise... I didn't think I was actually reflecting that much. But then when I actually went over it I did realise that I had done it a lot more and I think because I was more honest about myself... I think I was a lot more open to a lot of things (Student 6 – case 3).

I suppose Dr. Watson because he would look at things and stuff but I don't reflect on it that much. I don't go off on other paths and find out other things, I seem to just stick to one path, for example, world events I seem to have just stuck to that. I never tried to explore any other part of post-modernism. So that's why I'd be a Dr. Watson character (Student 11 – case 3).

From the comments above it can be seen that students were able to use the common languages provided by the communication tools to articulate areas of improvement. Moreover, the common languages reinforced how the students were working and guided them to recognise areas of future improvement. This was observed from asking the student to consider: Do you think understanding about the Sherlock Holmes characters will affect the way you work in the future? Their responses were:

Yeah, cause I know what you need to do to be a good looker and seer...I've been looking and seeing a bit and the Dr. Watson has definitely helped tell, set out what you need to do (Student 9 – case 3).

I think it'll help me look for ways in which I can improve my work. If I feel that I'm not doing enough, then I can probably relate to the Sherlock Holmes characters, look at whereabouts I am and look at how far ahead, and look at the weaknesses of that character in the context of what I'm actually doing, like actually in my project. So yeah, I can probably relate to them (Student 2 – case 3).

I don't think I'll constantly be thinking about being like that but I think the way I work is already quite similar to that. And it will just kind of reinforce that that is right and I'm doing it in the right way (Student 7 – case 3).

Furthermore, an educator felt that once the Sherlock Holmes Personas had been introduced to the students and they had experience of them, 'even those who did not engage with them initially would always have it in their psyche' (Educator – case 5).

8.3.2 Data Shown to Impede a Sociocultural Approach

The following pattern was a factor that impeded the development of designers' visual practices through a sociocultural approach.

Pattern four: Students' perceptions of peer feedback

This pattern highlights students' perceptions of giving and receiving peer feedback impeded social interactions and dialogues. The data segments below from interviews displayed some students'

disinclination to risk offending anyone in the group and some questioning the reliability of peer feedback.

How do you feel using the characters [Sherlock Holmes Personas] to give feedback to your peers?

I'm a bit mixed because although I feel the personal benefits when I get that feedback, it's hard to give out the feedback because you don't want to hurt their feelings or anything (Student 2 – Case 3).

Well again, I don't like it really. Because I was quite cutting. I remember the thing on the desk, it was quite empowering and I was telling people what I really thought. And then I could see the effect on their faces so that's life, you don't want to upset people I guess (Student 11 – Case 3).

How did you feel about getting feedback from the Reading the Narrative Session?

I hate how people are too nice and it really annoy me, 'cause it's like people saying 'oh that's great work' think it's a social thing isn't it? You don't want to offend anybody and also a few people that seem a bit touchy and... on a social level you don't want to upset someone (Student 6 – Case 1).

What was your experience of the Sherlock Homes Personas in the design critique?

I think some of it was biased, if your friend's going to put you as Sherlock Holmes like, obviously I got that, but I'm not complaining. People could put more things that you could have improved (Student 1 – Case 2).

The educator from case 2 supported this view, as they commented: Students are sensitive to feedback from other students and do not like to hurt each other's feelings.

8.3.3 Summary

The data segments presented above supported and expanded the learning attribute and process associated with fostering designers' visual practices through a sociocultural approach.

The first component of the framework of a sociocultural approach was defined as everyone has his or her own visual practices, which they form through social and cultural means. Table 5.1, pp.90-1 outlined the following learning attribute involved in the development of designers' visual practices through a sociocultural approach:

Reflection: Development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices.

This attribute was supported by the analysis for the reasons given below and therefore remained unchanged.

The data segments linked to the first and second patterns supported the understanding that the development of students' visual practices occurred through reflection. The first pattern – informal social interactions and dialogues – describes the learning environment that the educator creates and mediates to enable learning. It does not explicitly state how visual development occurs through reflection, but it can be inferred that the environment and the dialogues that take place within it and the role of the educator enable students to reflect on visual practices. The second pattern – enabling communication – facilitates students to reflect on their visual actions and processes through the provision of communication tools.

The data segments connected with the first pattern – informal social interactions and dialogues – supported and expanded the processed linked to a sociocultural approach. The first pattern described the environment the educator creates to enable informal social interactions and dialogues between students, and themselves; the educators facilitate, guide and nurture individual development. Therefore the description and title of the pattern outlined in Table 5.1, pp.90-1 – social interactions – was altered to that stated below – informal social interactions and dialogues.

Table 5.1, pp.90-1 outlined the following process as having the potential to help foster designers' visual practices through a sociocultural approach:

Social interactions: Facilitating social interactions in different learning situations (i.e. design critique, conversations with tutors and peers) can enable reflection on visual practices.

From the data analysis, the following processes were observed as enabling the fostering of designers' visual practices through a sociocultural approach:

Informal social interactions and dialogues: Designers' visual practices are fostered through informal social interactions and dialogues. The educator creates an environment to enable informal social interactions and dialogues between students and themselves. The educator is a facilitator, guide and nurturer of individual development.

Enabling communication: Communication tools provided common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. Feedback assimilated through the communication tools heightened an individual's awareness of their own and others' visual practices, enabling self-reflection. However, communication could be impeded by students' perceptions of peer feedback.

Internalisation of the communication tools: It is suggested that an individual internalises the common languages that the communication tools provide, enabling the observation of visual actions, and consideration and articulation of future visual practices.

The data segments associated with the second pattern – enabling communication – highlighted an additional process that helped foster designers’ visual practices through a sociocultural approach. The data analysis showed that enabling communication facilitated peer feedback on visual practices. However, the fourth pattern highlighted that giving and receiving peer feedback was impeded by some students’ disinclination to offend others, resulting in some questioning the reliability of peer feedback.

Nevertheless, the data suggested that after students’ visual practices had been enabled through communication tools they internalised the common languages provided by these tools to direct future visual practices.

The data segments presented above provided a deeper understanding of developing and fostering visual practices through a sociocultural approach. Section 9.2, p.219 presents a discussion on these findings.

8.4 A Shared Understanding of Visual Practices

This section presents descriptions and relevant data segments for each major pattern identified as enabling or impeding a shared understanding of visual practices; the second component of the framework for analysis. The patterns presented below are discussed at the end of this section to clarify how the learning attribute and process associated with a sociocultural approach have been informed by the data analysis. Table 5.1, pp.90-1 outlined a definition, learning attribute and a potential process used to foster designers' visual practices through a shared understanding. This was defined as an individual's ability to develop a shared understanding of a community's visual practices together with the learning attribute of reflection on this understanding. Development of this learning attribute presented an opportunity to enable an individual to observe, reflect and improve how they applied their visual knowledge and skills. The processes of enabling a shared understanding included observation and communication of a community's visual practices. That is, building a picture of a community's visual practices by observing forms and depths of engagement over a number of visual contexts provides an opportunity to create communication tools. Communication of a community's visual practices, through a tool, has the potential to facilitate designers to develop and reflect on a shared understanding. During the two research phases, the identified learning attribute and process were explored. One process enabling reflection on a community's visual practices emerged from an examination of the data gathered from the two research phases: communication of a community's visual practices through a metaphor. Two factors emerged that impeded a shared understanding: students' perceptions of peer feedback; and social environment. All the patterns that emerged are presented in Table 8.3 that shows where the data were gathered from each research phase.

Before presenting the patterns it is necessary to highlight the teaching-learning approaches where a shared understanding of visual practices was fostered during the research phases.

A shared understanding of visual practices had occurred during the Critical Viewing exercise, Reading the Narrative, Feedback Session, de Bono's Six Thinking Hats and Sherlock Holmes Personas. These teaching-learning artefacts had enabled students to observe and communicate the shared visual practices of a community. However, the Sherlock Holmes Personas involved formal observation of a community's visual practices, therefore a communication tool was developed to enable reflection on a shared understanding. Therefore data segments presented below are in relationship to the Sherlock Holmes Personas, as this tool enabled students to develop a clear shared understanding of visual practices.

Table 8.3: Patterns that were found relevant to enable or impede a shared understanding

	Research Phase One: Design Experiments			Research Phase Two: User Testing	
	Case 1: The first student project	Case 2: The second student project	Case 3: The third student project	Case 4: Case study one	Case 5: Case study two
The following pattern was shown to enable a shared understanding of visual practices:					
Pattern five: Communication of a community's visual practices through a metaphor		✓	✓	✓	✓
The following patterns were shown to impede a shared understanding of visual practices:					
Pattern four: Students' perceptions of peer feedback	✓	✓	✓		
Pattern six: Social environment		✓	✓	✓	

8.4.1 Data Shown to Enable a Shared Understanding of Visual Practices

What follows is a description and relevant data segments of major patterns identified as enabling a shared understanding of visual practices.

Pattern five: Communication of a community's visual practices through a metaphor

Through an analysis of data it has been established that providing a metaphor enables a common language that communicates a community's visual practices, externalising the experience of visual engagement. This common language enables the giving and receiving of feedback that promotes reflection on a community's visual practices. It is suggested that from the data segments below, through the use of the common language, students' aspirations develop and the educator's role changes from one that directs to one that guides and oversees.

A metaphor enabled a common language in the form of the Sherlock Holmes Personas that communicated a community's visual practices – externalising the experience of visual engagement. The following views captured this observation:

How would you explain the Sherlock Holmes characters to someone who's new on the course?

I would just sort of give a brief explanation as to how each character looks and sees, and how they work. Say for the housekeeper, doesn't see at all, she just looks at her work. Dr. Watson he can improve but if he cannot find a way around it he sort of attempts to, so, he takes on feedback but sometimes he doesn't always know how to use it. Whereas Sherlock Holmes takes on every bit of feedback and sort of builds on it, so that he can improve his work by using the feedback and visualises how he can change his work, he has like a vision for what he wants to do (Student 2 – case 2).

The cleaner basically just does things because she likes it. So with the cleaner she would just go into a shop, look at a canvas and she goes "oh I like that" so she buys it, rather than looking for more meaning to it. Whereas, Dr. Watson would look at the canvas and try and understand why they've done it. He would be the one that would think about it and not necessarily just buy it because he likes it but whether it would fit within in his home with the rest of his surroundings. And then I suppose Sherlock Holmes would probably look even more into it, the price, really analyse it. Say oh, well it's poor work, but it could improve by doing this to it, maybe even buying, doing that to it... I don't know! I'd just say he'd try and analyse every inch of it that he could and really try and understand why it's been done the way it has been. Look for the improvements and do the improvements (Student 8 – case 2).

Sherlock Holmes is somebody who takes in everything and sees the positives and negatives of things and then takes the positives and sees how they can be worked into his work and how he can improve using those things, and how he can push his boundaries and develop new ways of doing things... I guess almost as a milestone. Obviously if you start with the housekeeper, you've got further to go. Whereas if you're Dr. Watson you've still got a bit of a way to go, there are still improvements you could make, but not as much as the housekeeper. Obviously, being Sherlock Holmes, you're not perfect, you've got improvements to make, but not as much as before (Student 12 – case 2).

The data showed that the metaphor of the Sherlock Holmes Personas was easy to use, enabled students and educators to analyse each other's ability to visually engage and enabled feedback. The data suggested that it was easier for students to take feedback through the use of the metaphor, as the critique was directed at the character and not themselves. The following data segments capture this observation:

When and where have the characters helped you in your work?

Well, it's more analyzing, well analyzing myself and feedback from everybody else, they've helped us understand who we come closest to (Student 1 – case 3).

What was your experience of using the characters in crit?

I thought in a way it was like categorising everybody, like housekeeper there, Dr. Watson there, Sherlock Holmes, and so in a way, if you fit the person that was presenting into one of those characters and you could look at their weaknesses and how they could improve and sort of feedback based on the character, otherwise, if we didn't have the characters, it would just be everyone saying "ah, that's a good idea, I like this, I like that" I think it did

help, it gave everybody a guideline as to how to give feedback to the person presenting their ideas. So it was good (Student 2 – case 2).

When I was critiquing other people's work it was useful to me to get across how I saw their work (Student 7 – case 2).

When it comes to crits and getting other people to look at your work, then it is quite a structured way of getting people to look at your work. And it helps you focus on what you need to improve on (Student 6 – case 3).

What was your experience of the Sherlock Holmes Personas in the design crit?

Their critical abilities were better than those of the third year [Multimedia Design] students! (Educator – case 2).

They had phases and languages that I have never seen at this early stage, they were confident, with a set of phases to critique each other. It was done in a controlled environment they were quite happy to use them (Educator – case 2).

In terms of giving feedback advice and development it was brilliant, especially “This is who I am and this is how to improve”, it makes it a very quick process. I have never seen anything like it, I am amazed these are first years, I have never seen third years give feedback like that. You have given them a platform to say this is how I like my feedback, they are self-analysing. It is getting them over the negative, this is what you are doing wrong, and it is a hard thing for them to do, to stand up and say what I am doing wrong, especially at that age. I think this had really got them into it, I think the characters give them a way of being nice about it, and is a way of giving positive and negative feedback. Without the characters I think their feedback would be a little more on their own, it has given a framework for giving feedback and I think they are really good at it. I really do (Educator – case 3).

I think the very first lesson I sat in I would not have believed it... Where the characters make it a very comfortable way to take it on board, where the characters make it an easy way, maybe you can slightly distance themselves from the negative criticism initially, yet it still fed through, it is also like the character is getting the criticism whereas I am. It's almost giving them something to hide behind. But it is so direct, and it slightly dresses it up in this characters thing, so I am really impressed with their ability to give it and receive it (Educator – case 3).

It's a process that asks students, it helps and nurtures them in a process of self-reflection, reflection on the actual process that they're engaged in, giving them some form of benchmark. Then you work with a character to create a benchmark (Educator – case 4).

Absolutely fantastic in terms of having a clear understanding of the students. The characters makes it really easy to identify what problems they've got and where they need to get to move on. (Educator – case 3).

The data segments below highlight that providing metaphors developed students' aspirations:

How would you explain the Sherlock Holmes characters to someone who is new on the course?

I'd probably just say that they're kind of in place to try and help you progress. You want to be at the top end of the scale and you want it, it's like something to aspire to. If you think of it in a Sherlock Holmes character kind of way then you're probably going to produce better designs and you're going to be more open to thinking about different things, and it will improve your work and make your work better (Student 7 – case 3).

What character did you think you portrayed in the last project and why?

To start off with I was probably Dr. Watson / Sherlock Holmes, but then my confidence plummeted and I just tried to get the work done, so I probably went all the way down to the bottom. But I think that's just because of that project and that I got a band that I don't like, I think I still work in the top end, Dr. Watson kind of way. I try to research outside for things, and like be more like the Sherlock Holmes character. But I don't think the last project shows that very well (Student 5 – case 3).

How would you explain the Sherlock Holmes characters to someone new on the course?

I would say that Sherlock Holmes is like the gold standard, where you want to aspire to, you want to aspire to being because he's using his full set of investigative skills to plan a course of action rather than jumping in with both feet (Student 11 – case 3).

Can you think of any way the characters can develop your ability?

Focusing on the Sherlock Holmes character obviously, and remembering what it's about will help me remember what I need to do when I'm evaluating and analysing things (Student 12 – case 3).

Well, strive to be like Sherlock Holmes. Make sure your work's done and go back on it, look in depth, make sure you do all your research and that stuff (Student 3 – case 2).

The educator from the fifth case felt that using the Sherlock Holmes Personas in the design critique was effective, commenting that:

It is better to get the students to engage with each other, it is very tempting to feel that you have to facilitate all the session because there is this expectation that you are the tutor and you have to perform. Students could learn as much from their peers as they can from their tutor. All too often staff forget that students have the ability to talk to each other in an encouraging way... The pressure on me to perform as a member of staff is unnecessary. It would really help if students took more responsibility for their own and their peers' learning. This would not be an expectation in the brief, but done informally. In the design critique the Sherlock Holmes Personas could formalise it. Running the session in this way changes my role in the design studio, from a person who directs to a person who oversees and guides (Educator – case 5).

The data segment above implies that there is a role change from a design educator when using the metaphor, from directing what the students do, to a facilitator of processes, who allows students to find their own way.

8.4.2 Data Shown to Impede a Shared Understanding of Visual Practices

Social interaction and students' perception of peer feedback, pattern four, impeded the development of a shared understanding of visual practices. What follows is a presentation of data segments associated with the social environment as pattern four has previously been reported in Section 8.3.2, p.184.

Pattern six: Social environment

The data suggested that the set up of the social environment impacted the students' ability to interact and provide feedback.

The following data segments explain how the size of the group affected interaction between students:

What did you think of the characters as a method of peer and tutor assessment?

I quite liked that in a formative way, but again the groups were too big. It may work better next year with the smaller tutorial groups, but in the big ones they won't talk, and then if you force them they'll come out with some platitude. In small groups it works, but I don't think it's a process for large groups (Educator – case 4).

In the fifth case the educator had conducted the final design critique by asking students to consider one question based on the Sherlock Holmes Personas (more detail can be found in Section 7.3.2). This setting appeared to focus peer engagement and feedback.

What do you think worked in the critique session?

The questions that the students asked were good and it was a quick and easy way to reflect on their project (Educator – case 4).

The educator from case 3 commented that the setup of the environment created a structure for engagement and improved ability to give feedback in the final design critique when using the Sherlock Holmes Personas:

How do you feel that the students responded to the teaching style and the structure of the crit?

The crit I think was great, and this is where your structured style is, is fantastic. I mean, it really works very well in that. They... were shocked at... at how well they delivered...feedback and how there was no I mean, your structure was: right, tell me how you want feedback to be given, right, I want it like this, I want it like this, and they just gave it. And I was really quite surprised... at how well that worked (Educator – case 3).

From these data segments it can be observed that a supportive environment, where students are in small groups and are facilitated to develop their own rules of engagement, is required to enable peer feedback.

8.4.3 Summary

The patterns presented above are discussed in this section to clarify how the learning attribute and process associated with a shared understanding have been informed by the data analysis.

The data segments associated with pattern five – communication of a community’s visual practices through a metaphor – supported the proposal that development occurs through reflecting on a community’s visual practices. The metaphor of looking and seeing enabled an individual to reflect on visual practices and recognise areas for improvement suggested in feedback from the community.

Table 5.1, pp.90-1 outlined the following learning attribute involved in an individual’s ability to develop a shared understanding of a community’s visual practices:

Reflection on a community’s visual practices: Development of a shared understanding of a community’s visual practices presents an opportunity to enable an individual to observe, reflect and improve on how they apply their visual knowledge and skills.

This attribute was supported by the analysis for the reasons given below and therefore remained unchanged.

The analysis of the data supported and expanded the process of enabling designers’ development through a shared understanding of visual practices. The data segments associated with patterns five – communication of a community’s visual practices through a metaphor – and six – social environment – informed the change in description of the process outlined in Table 5.1, pp.90-1 to that stated below.

Table 5.1, pp.90-1 outlined the following process as having the potential to help foster an individual's ability to develop a shared understanding of a community's visual practices:

Observation and communication of a community's visual practices: Building a picture of a community's visual practices by observing forms and depths of engagement over a number of visual contexts provides an opportunity to create communication tools. Communication of a community's visual practices, through a tool, has the potential to facilitate designers to develop and reflect on a shared understanding.

The description of the learning attribute was informed by the data analysis, and therefore changed to:

Observation and communication of a community's visual practices: Building a picture of a community's visual practices, by observing forms and depths of engagement over a number of visual contexts, provides an opportunity to create communication tools in the form of a metaphor that provides a common language that externalises the experience of visual engagement. This common language enables the giving and receiving of feedback that promotes reflection on a community's visual practices. It is suggested that, through the use of the common language, students' aspirations develop and the educator's role changes from one that directs to one that guides and oversees. However, an environment that supports social interactions is crucial to enabling peer feedback (i.e. where students set their own rules of engagement).

Therefore the patterns associated with this component of the analytical framework have supported and developed the process outlined in the design framework in Table 5.1, pp.90-1.

Therefore, the data analysis and the rationale presented in this discourse led to redefining the characteristic presented in Section 5.3.1, p.82 to what follows below:

Characteristic One: A shared understanding of visual practices

Development of a shared understanding of a community's visual practices through a metaphor of looking and seeing, enables dialogue and feedback with the learning community that promotes observation, reflection and improvement in how an individual applies their visual knowledge and skills.

Section 9.3.1, p.228 presents a discussion on these findings.

8.5 Reflective Articulation of Visual Practices

This section presents descriptions and relevant data segments for each major pattern identified as enabling or impeding reflective articulation of visual practices; the third component of the framework for analysis. The patterns presented below are discussed at the end of this section to clarify how the learning attribute and process associated with reflective articulation have been informed by the data analysis. Table 5.1, pp.90-1 outlined a definition, learning attribute and a potential process used to foster designers' visual practices through reflective articulation. This was defined as a self-awareness of an individual's own visual practices that can be explicitly communicated to others. The identified learning attribute of reflective articulation was self-reflection on visual practices. That is, facilitating self-reflection on visual practices presents an opportunity to enable more effective feedback to be gained, as an individual is more able to communicate their visual practices, as awareness of visual activities develops. The process of enabling reflective articulation was identified as enabling self-assessment through a reflective journal which has the potential to improve articulation of visual practices, as awareness of visual activities develops. During the two research phases, the identified learning attribute and process were explored. From the data gathered, two processes emerged that enabled self-reflection on visual practices: enabling self-assessment and supporting self-assessment on visual practices. One factor emerged that impeded a reflective articulation: terminology and confidence. All the patterns that emerged are presented in Table 8.4 that shows where the data were gathered from each research phase.

Before presenting the patterns, it is necessary to highlight the teaching-learning approaches where the fostering of reflective articulation of visual practices took place during the research phases. Reflective articulation of visual practices was enabled through the Learning Log and assisted by the Sherlock Holmes Personas.

Table 8.4: Patterns that were found relevant to enable or impede reflective articulation of visual practices

	Research Phase One: Design Experiments			Research Phase Two: User Testing	
	Case 1: The first student project	Case 2: The second student project	Case 3: The third student project	Case 4: Case study one	Case 5: Case study two
The following patterns were identified that enabled reflective articulation of visual practices:					
Pattern seven: Enabling self-assessment	✓	✓	✓	✓	✓
Pattern eight: Supporting self-assessment on visual practices through a metaphor		✓	✓	✓	✓
The following pattern was identified that impeded a shared understanding of visual practices					
Pattern nine: Terminology and confidence	✓	✓	✓		

8.5.1 Data Shown to Enable Reflective Articulation of Visual Practices

What follows is a description and relevant data segments of major patterns identified as enabling reflective articulation to foster designers' visual practices.

Pattern seven: Enabling self-assessment

This pattern highlights how providing students with a structure of self-assessment enabled regular self-reflection on actions – planning and analysis of design activities. Depending on the student this extended to reflection on the work and themselves. Self-reflection encouraged students to justify their actions and enabled them to take more control of their learning.

Provision of a self-assessment framework – the Learning Log – enabled the students' integration of self-reflection into their working process over three projects (cases 1-3). Analysis of the data shows that this enabled regular planning and analysis of design activities. Depending on the student, this was extended to reflection on themselves as a designer. The following excerpts show three students' views of integrating the self-assessment framework over three projects

Which part of the learning log is important for you?/ What was your experience of the learning log?

Student 2:

I found that you need to sort of plan what you do, so obviously the plan's important now because I've found that I'm not really staying in my plan, I'm just really looking at what I could do now how I could use that. So I would say the plan's more important (Student 2 – case 1).

Reflect. As I like reflect upon it and try and see if I can make any improvement (Student 2 – case 3).

I felt more at ease because obviously this was the third one that I'd done. I felt that this learning log was easier to understand because I'd done two learning logs previously, and I was developing my ideas of what the learning log is and how I need to improve my learning logs and what I was actually doing, and I had to do that extra bit of research to actually understand the modernist principles. So I think I might try to always include further research after my concepts to try and boost my ideas and my learning as well. Feel a bit more comfortable again, than I was in the very first one (Student 2 – case 3).

Student 3:

Plan, obviously. I think the 'reflect' as well cause I can look back on what I did and didn't do and focus on what I should do (Student 3 – case 1).

Reflect. So I can understand why I did it wrong, or didn't do it, and should do it later. (Student 3 – case 2).

Reflect. The looking back, that's why I did an evaluation at the end. It's just...in some way looking back really helps you...develop further. Maybe on the next project as well. (Student 3 – case 3).

Student 8:

I think it depends on what I'm doing, I think if I get... sometimes I feel if I get lost when I'm going through it if I look back at the plans then it helps me to step back and think what I'm doing rather than end with... probably the reflection as well. I think that's quite important when I start the next one. I even might use just a little to do list part as that helped me sometimes as well (Student 8 – case 1).

The reflection part is important to me also because I tend to look at what I should have done and what I need to do. Then when I start the next one to plan, I always look back at the reflection previously and that helps me plan for the next learning log. So I know where I'm at and where I need to get to (Student 8 – case 1).

I was thinking last week about how the learning log has developed me as a person. But previously in my other learning log I'd learned to be a lot more patient and calmer, ... It helped me to actually just sit down and think about what I'd learnt, like why I'm doing things the way I am now. And how I used to do things and what advantages I've got now, compared to how I used to work. But when I did this, I started to reflect on myself a lot more. And when I started to reflect on myself, that's when I started to understand...not understand my concept, but it helped me understand the concept better and how I was

working with that concept. Because originally I'd be like "I'm doing it on dreams and I'm doing it on post-structuralism, so there needs to be options" but then I was like, I started thinking "well why does there need to be options?" I could start linking it back to post-structuralism and making it link rather than just presenting a user interface that didn't really match what I was supposed to be matching. Because I know in section two that it wasn't really important to me; that was just developing my ideas. But when I got into section three, that's when I could start reflecting. If I'd have started reflecting earlier, it would have been more of a diary (Student 8 – case 1).

In the educator's view the Learning Log enabled regular analysis of their work, and for some student of themselves:

What is your experience of the learning log?

The learning logs, for those who were just 'looking' at the work they're doing, at least it's progress and they are at least analyzing their work, which is a step in the right direction. I mean, even getting them to analyze their work is...is I think, a good thing because... alright they may be missing the point of actual research. But analyzing their work they've come up with some interesting... oh, I've done that wrong, I've done that wrong. But the ones who analyze themselves. I mean, well, it's different isn't it, in how that's really benefited them. So I think it's benefited all of them for level or another (Educator – case 3).

How did the students use the learning dairies?

The more advanced students... the students who look at the bigger picture, being independent learners... engaged with the Learning Log (Educator – case 5).

From the data segments below, enabling self-assessment benefited students, through justification and taking more control of their learning.

What was your experience of the Learning Log?

A useful tool for exploration and justification of your processes (Student 11 – case 1).

I think it stops them from copying and pasting images and develops their understanding of what is appropriate (Educator – case 2).

Well students have never been encouraged to reflect in this way before. It is important to get students to reflect and take more control of their learning (Educator – case 3).

Pattern eight: Supporting self-assessment on visual practices through a metaphor

This pattern presents data segments that described how self-assessment of visual practices was supported through a metaphor that made self-reflection relevant to the students. Furthermore, the metaphor is useful to enable engagement at the early stages of designers' development, before moving on to other processes.

During the first research phase – design experiment – it was observed that the Sherlock Holmes Personas guided students' self-assessment, and made the process of the Learning Log relevant. This observation led to posing the question below and elicited the following responses:

Did you notice that a lot of people took to the characters [Sherlock Holmes Personas] quicker than the learning log?

Basically because you just have a picture, and by saying the name of each one you kind of understand how they relate to what we're doing...so you'd understand the level of work that each one was. The learning log has got a lot more enjoyable than it was at first. I think the further we got on with it, because obviously you'd just introduced it so it was still like new, but I think now we can relate to it more. I still think that the learning log...without the characters wouldn't be as relevant. I think people would fulfil the characteristics, without the learning log, because me, I can't just read something and take it in, and it's the same with my work. If I'm doing something I'd need to actually write it down. I just think the characters are a lot easier to understand, they're straight to the point with what you're working with (Student 8 – case 2).

In the learning log you seem to be doing it like all yourself, you don't know what guidelines you've been set. But with the characters, it tells you what to do so they're a lot better, in my opinion (Student 10 – case 2).

I think the characters were a better, a faster way to develop your ability than the learning log 'cause you kind of, well I found that in the first learning log I was just repeating through what I'd done in the first one. But if you're doing the character part then and you get the feedback and you find out that you're not the one that you want to be then you can develop it more, so that would help you develop your ability in looking and seeing, like it did with me in the second one, I felt (Student 9 – case 2).

I agree with that, but I guess it was because it was not anyone else's fault other than my own because the learning log I was doing altered the way I worked quite a lot, but I still struggled. Because it was putting a lot of structure where there wasn't any before really. I kind of work quite freely, however it happens, and then the learning logs came in and forced me to learn in a different way. It has taken me a lot to get used to. It is a better way of working, and it's a way of working I'll continue to use because my work has improved [by] using it, so it would be stupid to go back to how I was working before (Student 12 – case 1).

The learning log takes time to do. You can understand the characters to a certain extent and just say "yeah, yeah, thanks" and all that. With the learning logs you've got to type up your ideas and all that stuff (Student 3 – case 3).

To me they're two different things. The learning log means you have to do work, but the characters don't really mean you have to do work. The characters are just something to categorise you as being, what you work like. You have to work around the learning log and the learning log's, well, at first people were saying that the learning log is slowing us down, it's a problem. But the characters are just there just for people to say right, you're this, you're that. But yeah, like I said, the learning log's just how I work, that's part of our work really (Student 5 – case 2).

The reason people took to that is because it's a one off thing, so in a presentation, right? You choose from however many options and you just say which one it is. Like "right, that guy's Sherlock Holmes", "that's Watson" because it's easier, people find it more palatable than having to sit down and write a learning log, analysing their thoughts, and that. So that's the main reason why people took to the characters more, more easier – it's easier so they won't have much of a gripe about that because it's just in the course of the presentation that we're going to be doing it. It's just sort of, not a problem (Student 6 – case 2).

It was indicated from the data segments above that students took time to engage with a process of self-reflection using the framework of the Learning Log, as it changed the way they were working and it was their responsibility to engage in this process. Whereas the Sherlock Holmes Personas were easier to engage with, as they were a one-off tool that provided benchmarks that informed how to reflect on visual practices, facilitating the students' approach to their engagement with the Learning Log. Based on the segments below, students viewed the Sherlock Holmes Personas as a self-assessment tool:

Do you think understanding about the Sherlock Holmes characters will affect the way you work in the future?

I think it'll help me look for ways in which I can improve me work (Student 2 – case 3).

Just through understanding the characters more and understanding the personas that you try and match to yourself and see where you need to develop. Using the key points within the self-evaluation as well. "Did I do this?" and if not, then try and develop that skill further (Student 4 – case 2).

Looking at the characters and seeing that you need to look and see. I think that develops that from the first project compared to the other one. I was better, I saw more in the last one, that was partly down to looking at the characters and what I needed to develop (Student 9 – case 2).

I think knowing what the characteristics are of each one helps, 'cause I know that obviously I wanted to do the best I could so I would look at Sherlock Holmes and start thinking that's what I needed, so I would try and work to that. So I think that has developed my ability to find inspiration and analyse things a lot more, rather than just look something over and think, oh that could be improved, actually doing something about it and going ahead and improving it (Student 8 – case 2).

Just same again with Sherlock Holmes. Just go through that, and you're going to get a good grade from it. It's taking you through, if you follow the majority of things, you're going to go into researching other things, not just all about one design aspect, or one view. Going into several views (Student 10 – case 2).

Just basically looking at what I'm seeing I think the characters...if you find which you are, I can look at their weaknesses and then sort of build on that, and look at how they can improve. And look at the character strengths based on your work. "I'm looking there but

I'm not seeing there" I can sort of try and figure a way of seeing where I'm not. So that I can understand a bit more and develop myself, so that I'm always looking and seeing rather than just looking (Student 9 – case 3).

The educators shared the same viewpoint as the students, viewing the Sherlock Holmes Personas as a 'process of self-reflection' (Educator – case 4) and 'a tool for self-reflection' (Educator – case 5). As highlighted below, the Sherlock Holmes Personas are useful to enable engagement in the early stages of a designer's development, before moving on to other processes:

How do you feel it is a method for students to improve themselves?

I think it's a useful tool. I don't think it's the only tool that they should engage with, they should sort of use it as a starting point and they should be aspirational enough to say "I want to move away from Mrs Hudson, I want to be Dr. Watson" and for some people Dr. Watson is all they'll ever achieve. I think it is important for them to realise that that is a tool for self reflection, but it doesn't mean... by going to exhibitions, or talking to people or reading the right magazines, they will themselves grow in confidence and in the ability to see and by osmosis become Sherlock Holmes, by the final year (Educator – case 5).

8.5.2 Data Shown to Impede Reflective Articulation of Visual Practices

This section present data segments associated with pattern nine, which describes how terminology and confidence impeded the development of reflective articulation of visual practices.

Pattern nine: Terminology and confidence

This pattern highlights the observation that students were only able to plan and analyse their visual activities regularly, once they had understood the terminology and were confident with the self-assessment framework.

The following data segments demonstrate students' difficulty in engaging in the Learning Log, as they did not understand what to do or the terminology of this self-assessment framework when it was introduced:

How did you engage with the Learning Log?

With difficulty. Because it was confusing with the different sections. I got confused with where I was putting things. So some learning logs I found I was putting totally different things in (Student 1 – case 1).

Well at first it was a bit confusing as to what exactly we had to do, and even now I have to think of something to write in each of the boxes. I still have to think of what I need to write, but it's become clearer (Student 2 – case 1).

Difficult to begin with and then once I got my head round it, like I said, it became easier to do (Student 9 – case 1).

Thus, students had to develop confidence in engaging in the reflective framework of the Learning Log before it become meaningful to them:

What was your experience of the learning log compared to the previous project?

That was a bit confusing, until I grew in confidence with the learning log (Student 2 – case 2).

Just basically trying to get through it. More structured this time, because as I was getting used to it, as I say, I was doing the plan first, and then going to design it. Then coming back, seeing what I did, and then reflecting, seeing what I could improve, things like that (Student 1 – case 3).

I felt more at ease with it, because obviously this was the third one that I'd done. I felt that this learning log was easier to understand because I'd done two learning logs previously, and I was developing my ideas of what the learning log is and how I need to improve my learning logs and what I was actually doing, and I had to do that extra bit of research to actually understand the modernist principles. So I think I might try to always include further research after my concepts to try and boost my ideas and my learning as well (Student 4 – case 3).

Do you remember the first time I introduced the learning logs, there was resistance to them. What's your view on it now?

I think they have. They're gradually helping me learn more that I'm understanding what's necessary to be put in and... what isn't necessary so, I mean, I am getting used to them. I am gradually understanding how to use them more effectively in terms of using notes and as a presentation tool (Student 4 – case 3).

I think the resistance at the start was just more utter confusion as to what you were asking for really. I think now that I understand them more, I think mainly it's just, with the whole having to constantly reflect and evaluate that's maybe off-putting to some people. Some people just prefer to plan and then get on with it (Student 9 – case 3).

8.5.3 Summary

This component of the framework was defined as self-awareness of an individual's own visual practices that can be explicitly communicated to others. The patterns presented above are discussed in this section to clarify how this definition was not supported and also to explain how the learning attribute and process associated with reflective articulation have been informed by the data analysis.

The analysis showed that self-reflection develops designers' visual practices. However, a general structure of enabling students to plan and analyse their actions (pattern seven) was enabled through metaphors that communicated the process involved when developing visual engagement, making self-reflection relevant (pattern eight). Depending on the individual, this extended to self-reflection on themselves (pattern seven). Therefore self-reflection on visual practices did not present an opportunity to enable more effective feedback, but developed students' engagement with their work, resulting in them becoming more active learners. Therefore the description of the learning attribute was changed to that stated below.

Table 5.1, pp.90-1 outlined the following learning attribute involved in a self-awareness of an individual's own visual practices that can be explicitly communicated to others:

Self-reflection on visual practices: Facilitating self-reflection on visual practices presents an opportunity to enable more effective feedback to be gained, as an individual is more able to communicate their visual practices as awareness of visual activities develops.

The description of the learning attribute was informed by the data analysis, and therefore changed to:

Regular self-reflection on visual practices: Facilitating self-reflection on visual practices presents an opportunity to enable individuals to plan and analyse visual actions regularly, developing the ability to justify them, engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves.

The Learning Log, the reflective journal, took time to integrate into students' practices; once they understood the terminology and were confident with the self-assessment framework (pattern nine), they engaged in regular self-reflection on actions (planning and analysis of design activities). This process was a general approach, and it was not evident from the data that a reflective journal improved articulation of visual practices amongst the first year student cohort. However, providing a self-assessment framework (in the form of the Sherlock Holmes Personas) that describes the process of reflecting on visual engagement, enabled self-assessment. Therefore, the reflective journal was not an effective tool, but investigation led to redefinition of what was involved in the process of fostering self-reflection on visual practices, therefore the description of the process originally identified in Table 5.1 was redefined to that which is presented below.

Table 5.1, pp.90-1 outlined the following process as having the potential to help foster designers' visual practices through reflective articulation:

Self-assessment of visual practices: Enabling self-assessment through a reflective journal has the

potential to improve articulation of visual practices as awareness of visual activities develops.

The description of the process was informed by the data analysis, and therefore changed to:

Self-assessment framework: Enabling self-reflection on visual practices takes time, providing a self-assessment framework that describes the process of reflecting on visual engagement enables self-assessment.

The patterns associated with this component of the analytical framework had not supported its definition, but had informed the description of the learning attribute and process outlined in the design framework in Table 5.1, pp.90-1. Therefore, based on the data segments presented above, no evidence of either development of self-awareness of an individual's own visual practices, or ability to communicate them explicitly to others, was found. As a consequence, this component could not be called reflective articulation, as only the reflective element was evident in the data. In addition, the evidence showed that implementing the process to enable self-reflection on visual practices did not explicitly lead to improved awareness; however, it did lead to improved engagement and regular self-reflection on visual practices. Therefore, the data analysis and the rationale presented in this discourse led to redefining the characteristic presented in Section 5.3.2, p.84 to what follows below:

Characteristic two: Constructive reflection on visual practices

Facilitating self-reflection on visual practices presents an opportunity to enable individuals to plan and analyse visual actions regularly, developing the ability to justify them, and engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves. Enabling self-reflection on visual practices takes time, providing a self-assessment framework that describes the process of reflecting on visual engagement enables self-assessment.

Section 9.3.2, p.230 presents a discussion on these findings.

8.6 Critical Questioning of Visual Practices

This section presents descriptions and relevant data segments for each major pattern identified as enabling or impeding critical questioning of visual practices; the fourth component of the framework for analysis. The patterns presented below are discussed at the end of this section to clarify how the learning attributes and processes associated with critical questioning of visual practices have been informed by the data analysis. Table 5.1, pp.90-1 outlined a definition, learning attributes and potential processes that could be used to foster designers' visual practices through critical questioning. This was defined as an individual's critical abilities to question what and how they see. The identified learning attributes of critical questioning were:

1. Evaluation of (what they see): Facilitating evaluation of visual practices presents an opportunity to enable more active seers that are able to understand and explain the visual world.
2. Reflexivity on visual practices (how they see): Facilitating reflexivity on visual practices presents an opportunity to develop self-knowledge and the ability to transform them.

The processes of enabling critical questioning included:

1. Facilitating exploration and questioning: Enabling exploration and questioning of the visual world, through stories and metaphors, has the potential to enable individuals to evaluate visual practices
2. Metacognitive regulation: Development of activities that assist metacognitive regulation has the potential to facilitate reflexive ability – self-knowledge of and knowledge of how to transform visual practices.

During the two research phases, the identified learning attributes and processes were explored. Two processes used to help enable evaluation of and reflexivity on visual practices emerged from an examination of the data gathered from the two research phases: enabling evaluation of visual practices; and enabling self-evaluation of visual practices. One factor emerged that impeded critical questioning: students' perceptions of peer feedback. All the patterns that emerged are presented in Table 8.5 that shows where the data were gathered from each research phase.

Table 8.5: Patterns that were found relevant to enable or impede critical questioning of visual practices

	Research Phase One: Design Experiments			Research Phase Two: User Testing	
	Case 1: The first student project	Case 2: The second student project	Case 3: The third student project	Case 4: Case study one	Case 5: Case study two
The following patterns were identified that enabled critical questioning of visual practices					
Pattern ten: Enabling evaluation of visual practices	✓	✓	✓		
Pattern eleven: Enabling self-evaluation of visual practices			✓		✓
The following pattern was identified that impeded critical questioning of visual practices					
Pattern four: Students' perceptions of peer feedback	✓	✓	✓		

Before describing the identified patterns, it is necessary to highlight where an individual's critical abilities to question what and how they see were fostered during the research phases, as it is relevant to the discussion below. Reading the Visual, Reading the Narrative, Brainstorming, de Bono's Six Thinking Hats and Peer Feedback developed students' ability to evaluate visual practices. Critical Viewing, a group discussion of what looking and seeing are, and a Self-Evaluation Activity enabled reflexive ability on and self-knowledge of visual practices.

8.6.1 Data Shown to Enable Critical Questioning of Visual Practices

What follows is a description and relevant data segments of major patterns identified as enabling critical questioning of visual practices.

Pattern ten: Enabling evaluation of visual practices

This pattern highlights how the provision of evaluative structures (questions or frameworks) enabled students to analyse in-depth what they were seeing. Feedback received through the evaluative structures enabled students to reflect on their visual actions. The evaluative structures also enabled social interactions, and promoted confidence and openness.

The following data segments show how the provision of evaluative structures enabled students to offer in-depth analysis when viewing their peers' work and facilitated reflection on visual actions based on feedback received:

Your worksheets...well, it helped in terms of developing analytical skills in what to look for and what to talk about and what to evaluate. They were beneficial (Student 2 – case 1).

What was your experience of the Reading the Narrative exercise?

Yeah, it was good. Good to see what other people had done. I think it's a... a good process to go through 'cause then you get feedback on your own as well, as well as giving other people feedback to let them improve the... the work (Student 10 – case 1).

But most of the feedback about the images was good. Although people didn't get the narrative because they couldn't hear the song, because I think people just looked and gave feedback on the images rather than listening to the song and then viewing the images, so they couldn't exactly read the narrative properly, but it was still good because you got feedback from a wide range of audiences (Student 9 – case 1).

What was your view of the six hats?

It was much more structured than just getting feedback. It gives us positive and negative feedback. It wasn't just people saying "ah, that looks nice". It forced people to pick faults with it and make you work harder (Student 7 – case 2).

I really enjoyed that... people had to categorise it down and analyse it properly, and what improvements were needed. I thought it was better for improving things (Student 8 – case 2).

I quite like it, it works. It helps me, I don't know how to put it. Before I'd not really known how to go about it really, so it's quite a good point in that direction for me (Student 12 – case 2).

Yeah, it really helps, giving people time to sit down and tell you what's wrong (Student 3 – case 2).

Yeah, I think the six hats is good, because it gets everyone to focus on one part of everyone else's project. And then you get better feedback, even though it's just on little post-it notes and it's just words and things like that, it's easier to understand it. Whereas if you were just in a crit with people who don't know anything about your work and you don't write it down, you might forget it. (Student 2 – case 3).

I think they did help me to learn. I mean, they were, they were useful to me at times when I should have considered the points made by the peers more, and developing the work (Student 4 – case 3).

What was your experience of brainstorming?

I thought that it was good because it sort of opens your mind a bit more, that helped us think about how to brainstorm, like how to categorise it into different things (Student 2 – case 3).

The process of providing an evaluative structure to question what they were seeing enabled development of social interactions, confidence and openness. The following comments support this observation:

What was your experience of the Reading the Narrative exercise?

There was more interaction between you and us, and then us and the rest of us, if you know what I mean. Us and our peers (Student 4 – case 3).

Was quite good 'cause I know... I don't really, at first when I'm creating something I don't... I like to keep to myself. I'm like very... I don't know, I just feel uneasy about it 'cause I don't know how everybody else is doing at first. But then once you put them on the wall it was nice to walk around and see like if I had done better, or if I hadn't, things where I could improve (Student 8 – case 1).

What was your view of the six hats?

People building my confidence, saying it looks good and that. So I thought "alright, let's do a bit more" and that. Actually enjoy going round, and looking at other people's and seeing what they were doing. I don't like to be kept in the dark about other peoples'... I like to compare and see if I'm doing less or doing more. I still was happy with the comments people made about it (Student 1 – case 2).

I thought that, that was quite helpful; like I hadn't, I'd seen a few people, other people's work, but I hadn't seen like I'd forgotten anyone had done the same song as me, and other people had taken a completely different angle on it, and it helped me kind of, well, I suppose, suppose, it worried me a bit 'cause other people had done something completely different, but it also kind of...gave me a bit of confidence that other people liked my images, and people giving suggestions so I could change them around and that kind of thing (Student 7 – case 2).

The Feedback Sessions in case 2 asked students to create their own language to evaluate their peers' work, enabling a shared understanding of what to look for when providing feedback to their peers during a design critique. A student commented that this had enabled them to be open:

What was your experience of being asked to set guidelines to crit each others work?

I think that helps quite a bit with the whole group, to be more open about what was said. Because when people were going round, people were saying positive things, but it wasn't necessarily entirely positive, but it was positive criticism that was being talked about and it stopped people taking criticism in a bad way. So it encouraged people to express their views, and it helped (Student 12 – case 2).

Pattern eleven: Enabling self-evaluation of visual practices

This pattern highlighted that providing a language and metaphor that communicated the experience of visual engagement in design assisted students to self-evaluate their visual practices, enabling them to analyse and develop self-knowledge of barriers and areas of improvement.

As mentioned in pattern two – enabling communication – Section 8.3.1 had described how the critical viewing exercise used during the first student project, had enabled students to share viewpoints, through a discussion on the terms looking and seeing. This dialogue resulted in developing awareness of visual engagement in general and during their project.

When students carried out the Self-Evaluation Activity, they used the terms looking and seeing and the Sherlock Holmes Personas, which enabled them to look back over their project and understand how they had visually engaged, resulting in understanding their barriers and improvements to their work. This was evident from their responses to the following question:

How did you carry out the self-evaluation exercise?

I just looked at the sheet and thought about my previous learning logs. I actually looked at my previous learning logs to help us think about the questions that ask about them. I also looked at the previous learning logs to see when I was looking and when I was seeing. And then I found that I was seeing more as I progressed through the learning logs. So I felt that in the first project I wasn't really seeing much, at all, until the development stage and the second project I was seeing a little bit more but not enough, and then obviously the third project I was seeing much more... I think it was quite handy because it helped you to relate more to the characters, the Sherlock Holmes characters. It also summed up everything that you've done and give you a brief overview of where you need to... where I've been looking and seeing, and where I need to improve. So it sort of helped even though it took like 15 minutes to do (Student 2 – case 3).

Firstly, I felt it was just...it was a bit tedious, just looking back on what I'd done earlier, because I knew I'd already done all that, and I knew I needed to develop. Just having to look back on what I've already done when I know that I've ... I've already... I should have put a lot more effort into certain areas. I think it can help, looking back on what you've already done, and improve on it and explain (Student 12 – case 3).

I think that sometimes I possibly felt like I was writing the same thing a few times. I think it was more easy just to go to the last two stages and go like this is where I'm seeing because I'm reflecting on what I'm doing and looking back at things (Student 8 – case 3).

The educator that conducted the Self-Evaluation Activity during the fifth case study stated it enabled students to develop awareness of how they had learnt and recognise areas of improvement:

What was your experience of the self-evaluation exercise?

I think from this exercise students recognised where they stood and where they needed to go. In addition, every member of staff would love for students to have aspirations and have them able to reflect on themselves, having an awareness of how they learn, and understanding how they can learn from each module. It has helped them to see the whole building of a process... it was an opportunity to engage deeply with students... I could spend time on asking students where they are looking and seeing, developing students' engagement, as it was a mark component (Educator – case 5).

8.6.2 Data Shown to Impede Critical Questioning of Visual Practices

Students' perception of peer feedback impeded the development of designers' critical ability to question what and how they see. Refer to pattern four for examples of relevant data segments in Section 8.3.2, p.184.

8.6.3 Summary

The patterns presented above are discussed in this section to clarify how the learning attributes, processes and definition associated with critical questioning were informed by the data analysis.

Table 5.1, pp.90-1 outlined the following learning attributes involved in an individual's critical abilities to question what and how they see:

1. Evaluation of visual practices (what they see): Facilitating evaluation of visual practices presents an opportunity to enable more active seers that are able to understand and explain the visual world.

2. Reflexivity on visual practices (how they see): Facilitating reflexivity on visual practices presents an opportunity to develop self-knowledge and the ability to transform them.

The learning attributes were informed by the data analysis, and therefore changed to:

1. Critical evaluation of visual practices: Facilitating critical evaluation of visual practices presents an opportunity to enable more active seers who are able to engage with the visual world.

2. Critical self-evaluation of visual practices: Facilitating critical self-evaluation of visual practices presents an opportunity to develop self-knowledge of visual practices.

The data segments connected with the tenth pattern – enabling evaluation of visual practices – supported the first learning attribute linked to a critical questioning of visual practices. The tenth pattern described how the provision of evaluative structures assisted students to evaluate what they

were seeing and added depth to their analysis. Pattern eleven – enabling self-evaluation of visual practices – showed that through the provision of common languages that describe the experience of visual engagement in design, students were assisted to self-evaluate their visual practices enabling them to analyse and develop self-knowledge of barriers and areas of improvement. Patterns ten and eleven were shown to support the identified learning attributes above, however, they are more evaluative than simply questioning. Therefore the learning attributes were changed to reflect additional knowledge gained from the analysis, as described above.

Table 5.1, pp.90-1 outlined the following processes as having the potential to help foster an individual's critical abilities to question what and how they see:

1. Facilitating exploration and questioning: Enabling exploration and questioning of the visual world, through stories and metaphors, has the potential to enable individuals to evaluate visual practices.

2. Metacognitive regulation: Development of activities that assist metacognitive regulation has the potential to facilitate reflexive ability – self-knowledge of and knowledge of how to transform visual practices.

The processes were informed by the data analysis, and therefore changed to:

1. Evaluative structures: Providing evaluative structures enables an individual to analyse what they are seeing.

2. Self-evaluation of visual practices using common languages: Providing metacognitive regulation using common languages that describe the experience of visual engagement in design assists self-evaluation of visual practices enabling an individual to analyse and develop self-knowledge of barriers and areas of improvement.

Through the presentation of patterns ten and eleven the processes associated with the critical questioning of visual practices have been expanded and refined. The tenth pattern – enabling evaluation of visual practices – described how the provision of evaluative structures enabled the exploration and questioning of visual practices, that added depth to students analyse and developed social interactions, confidence and openness. However this was not achieved through stories and metaphors but through the common language the evaluative structures provided, assisted in student to understand what they were look for when analyse their peers or their own work. Nevertheless, it should be noted that a student's ability to reflect on the feedback gained through the provision of evaluative structures was impeded by the student's perception of peer feedback (refer to pattern four in Section 8.3.2, p.184). Processes that enabled metacognitive regulation were described in

pattern eleven – enabling self-evaluation of visual practices. The data segments associated with identified activities that enabled students to develop self-knowledge through a common language and a metaphor of looking and seeing. Therefore, the original process identified in Table 5.1 was redefined to reflect what was found in the data to what is presented above.

The patterns associated with this component of the analytical framework had informed the description of the learning attributes and processes, but also the definition outlined in the design framework in Table 5.1. The definition – an individual’s critical abilities to question what and how they see, was supported based on the data segments presented. However it also enabled an individual’s critical abilities to evaluate what and how they see – evaluate and self-evaluate their visual practices. Therefore, the data analysis and the rationale presented in this discourse led to redefining the characteristic presented in Section 5.3.3, p.84 to what follows below:

Characteristic three: Critical evaluation of visual practices

Developing an individual’s critical abilities to evaluate and self-evaluate their visual practices presents an opportunity to enable more active seers who are able to engage with the visual world and develop self-knowledge. Providing evaluative structures and metacognitive regulation using common languages assists evaluation and self-evaluation of visual practices enabling individuals to analyse what they are seeing and develop self-knowledge of barriers and areas of improvement.

Section 9.3.3, p.232 presents a discussion on these findings.

8.7 Analytical Results

This section presents the results of the analytical process – descriptive statements about the focus of the study. The analytical results were classified under two categories: confident and suggestive descriptions of developing and fostering designers' visual practices.

With confidence, the following descriptive statements of developing and fostering designers' visual practices were observed in the components of the analysis presented above:

1. Reflection: Development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices.
2. Informal social interactions and dialogues: Designers' visual practices are fostered through informal social interactions and dialogues. The educator creates an environment to enable informal social interactions and dialogues between students and themselves. The educator is a facilitator, guide and nurturer of individual development.
3. Enabling communication: Communication tools provided common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. Feedback assimilated through the communication tools heightened an individual's awareness of their own and others' visual practices, enabling self-reflection. However, communication could be impeded by students' perceptions of peer feedback.
4. Reflection on a community's visual practices: Building a picture of a community's visual practices, by observing forms and depths of engagement over a number of visual contexts, provides an opportunity to create communication tools in the form of a metaphor that provides a common language that externalises the experience of visual engagement. This common language enables the giving and receiving of feedback that promotes reflection on a community's visual practices. It is suggested that, through the use of the common language, students' aspirations develop and the educator's role changes from one that directs to one that guides and oversees. However, an environment that supports social interactions is crucial to enabling peer feedback (i.e. where students set their own rules of engagement).
5. Regular self-reflection on visual practices: Facilitating self-reflection on visual practices presents an opportunity to enable individuals to plan and analyse visual actions regularly, developing the ability to justify them, and engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves. Enabling self-reflection on visual practices takes time, providing a self-assessment

framework that describes the process of reflecting on visual engagement enables self-assessment.

6. Critical evaluation of visual practices: Facilitating critical evaluation of visual practices presents an opportunity to enable more active seers who are able to engage with the visual world. Providing evaluative structures enables an individual to analyse what they are seeing.
7. Critical self-evaluation of visual practices: Facilitating critical self-evaluation of visual practices presents an opportunity to develop self-knowledge of visual practices. Providing metacognitive regulation using a common language assists self-evaluation of visual practices enabling an individual to analyse and develop self-knowledge of barriers and areas of improvement.

The following description, generated through the data analysis, is a suggestive statement, which relates to the development and fostering of designers' visual practices:

8. Internalisation of the communication tools: It is suggested that an individual internalises the common languages that the communication tools provide, enabling the observation of visual actions, and consideration and articulation of future visual practices.

8.8 Overview of the Data Analysis

This chapter has presented the data analysis and results of this study. Data segments that were found to enable or impede the four components of the framework for analysis have been identified and discussed. Data were found to support each component of the framework. However, the analysis highlighted some modifications that allow the theory to be more accurately descriptive of fostering visual practices through a sociocultural approach. Section 8.7 presents the study's analytical findings in the form of descriptive statements, learning attributes and processes of fostering designers' visual practices. These statements were identified as either confident or suggestive descriptions of developing and fostering designers' visual practices. The next chapter discusses and visualises the descriptive statements which make explicit how the study's aim has been addressed.

Chapter Nine: A Discussion on Fostering Designers' Visual Practices Through a Sociocultural Approach

9.1 Introduction

This thesis explores the research question of how designers' visual practices are developed and fostered. Through the literature presented in Chapters 2 and 5, a research design and the design framework presented in Table 5.1, pp.90-1 provided a means to investigate the research question. Chapters 6 and 7 presented the learning situation where the data were gathered. In the previous chapter, the presentation of the data analysis drew conclusions upon which a response to the research question is drawn. This chapter discusses the findings of the study; implications and areas of further research are identified. The discussion outlines how this study has addressed the aim of the thesis: to increase our knowledge of developing and fostering designers' visual practices.

9.2 A Sociocultural Approach

This section presents a discussion on fostering designers' visual practices through a sociocultural approach. Through the discussion of the research findings, three models are presented that describe a theory of how visual inquiry is developed and fostered in design education. Presentation of a sociocultural approach explicitly develops knowledge of visual development, but also offers a more effective learning theory upon which to ground visual pedagogy in design.

9.2.1 A Sociocultural Approach to Fostering Designers' Visual Practices - A Basic Tutorial and Critique Model

Figure 9.1 shows the first model – a basic tutorial and critique model – explaining the theory of how visual practices are fostered in design education through a sociocultural approach. This model is based on the following findings:

- Reflection was the first descriptive statement presented in Section 8.7, p.214. That is, development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices.
- Informal social interactions and dialogues was the second descriptive statement presented in Section 8.7. This statement observed how designers' visual practices are fostered through informal social interactions and dialogues. The educator creates an environment to enable informal social interactions and dialogues between students and themselves. The educator is a facilitator, guide and nurturer of individual development.
- Educators' responses to stage one of the knowledge elicitation exercise presented in Tables 7.2, p.159 and 7.4, p.169 indicated teaching-learning artefacts (sketchbook and Design Document) and activities (tutorials, tutor feedback, presentation) enabled students to record and reflect on their visual actions with both tutor and peers, each of which led to improvement in visual practices.

A Basic Tutorial and Critique Model

Based on the findings presented above, Figure 9.1 illustrates how designers' visual practices are fostered through informal social interactions and dialogues during tutorials and critiques through the following process:

- Show: The student shows the artefact they have designed based on the criteria of the design brief.
- Discuss: Educators and peers engage in dialogue and provide the student with critical feedback.

- Reflection: Students reflect on their visual actions and implement feedback in their design. Reflection on approaches to engage in visual context is dependent on how the individual works and learns.

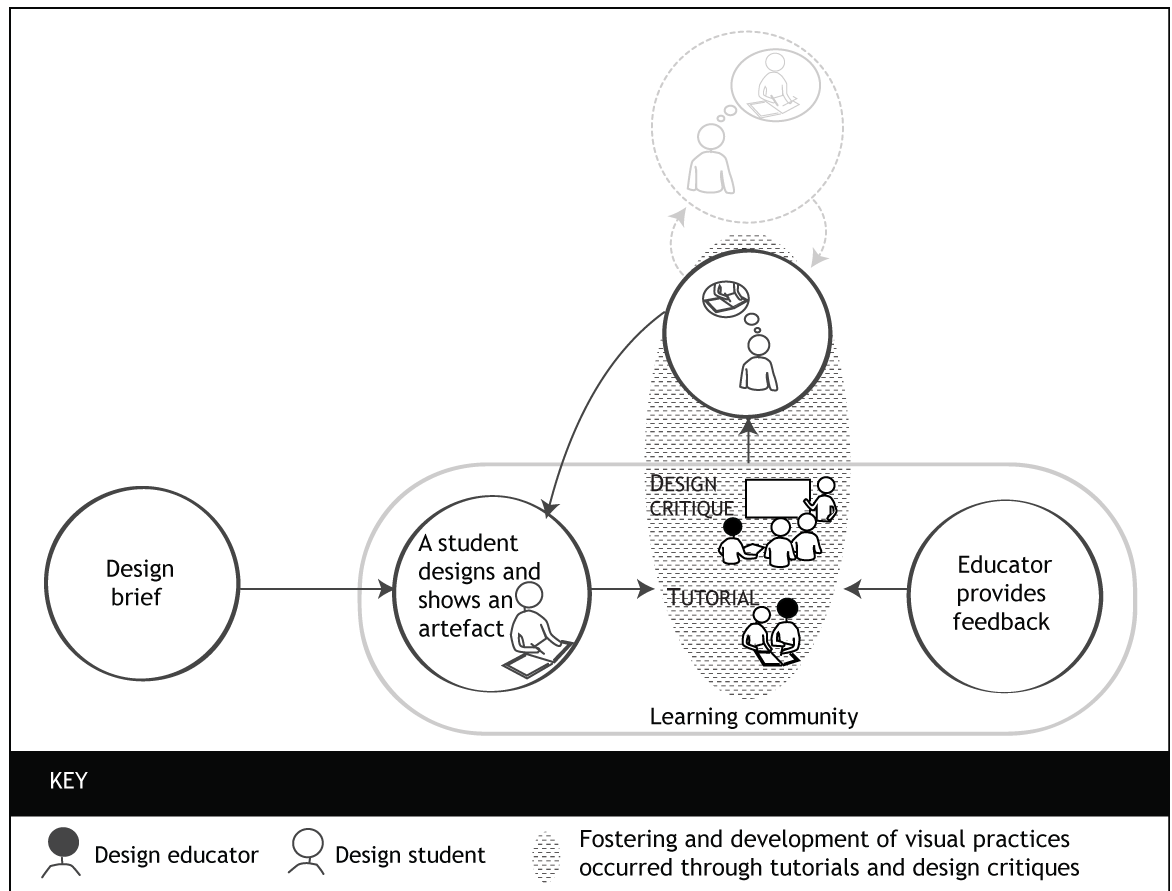


Figure 9.1: A sociocultural approach to fostering designers' visual practices – a basic tutorial and critique model

The features of a basic tutorial and critique model are:

- The educator creates an environment for informal social interactions and communication to occur in the design studio, to enable dialogue between them and the student, and the student and peers. The educator facilitates, guides and nurtures individual development. This environment enables a student-centred approach to learning, where visual development occurs through osmosis, by reflecting on critical feedback.
- Students are involved in a passive learning process, but are actively engaged in their design work, recording their visual actions.

A basic tutorial and critique model can be further contextualised through the explanation of four sociocultural concepts: lower and higher mental functions, psychological tools and internalisation and zone of proximal development.

Wertsch (1985, p.24) described how Vygotsky was concerned with understanding how mental structures (i.e. memory, perception and thinking) occurred in an elementary form and then changed to a higher form. Through this investigation Vygotsky outlined two lines of development involved in this transformation: natural and social (or cultural). Natural development produces elementary mental functions stimulated through the environment. Whereas, cultural development converts elementary forms into higher mental processes, through self-direction and self-regulation of behaviour. Social interactions develop higher mental functions, through the use of psychological tools (language, gestures, sign systems) that an individual implements to control their own and other's activity. Psychological tools (language, gestures, sign systems) are externally oriented, used in

“transforming natural human abilities and skills into higher mental function... The ‘higher’, or cultural, functions, which are specifically human and appear gradually in a course of radical transformation of the lower functions.” (Vygotskii and Kozulin, 1986, p.xxv)

Therefore development first occurs on a social level, then later on an individual level (Vygotsky, 1978, p.57). Therefore, through social interactions and psychological tools during the process of designing an artefact, a student interacts with their environment and gains feedback through a critique-based process, enabling reflection on visual actions. Through the use of psychological tools, in the form of languages that describes the process of engaging or conducting a visual inquiry in a design discipline, individual and social interactions are mediated through dialogue.

Through a critiquing process a student learns to develop the ability to engage in visual inquiry. Through dialogue a student begins to internalise the psychological tools, resulting in students using the language gain through dialogue to communicate with each other (self-talk), and eventually they internalise the psychological tools to direct further visual actions. This is based on Vygotsky and Cole's (1978, p.57) concept of internalisation, referring to the process whereby a child uses a language to structure social interaction and talks (self-talk) out loud to understand the world around them. Gradually, self-talk is used more as a tool for self-direction and self-regulation of behaviour. Then, around school age, self-talk is no longer externalised but has become internalised as a tool for personal use. Vygotsky suggested that, having been internalised; language is used to structure what the child intends to do rather than being used in hindsight.

Therefore, informal social interactions foster visual development during a critiquing process. In this process dialogues play two important roles: at the start of fostering designers' visual practices, enable reflection on visual actions through informal dialogues about engagement in visual inquiry, but then through the process of internalisation of psychological tools, students used the language

gained to plan their future actions. During the critiquing process, the educator guides the informal dialogues in the learning community, as well as creating an environment for social interactions to occur. In essence, design educators start where the students are currently learning, enabling a student-centred environment. This relates to Vygotsky's (1978) theory on enabling development – zone of proximal development, that is:

“the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (p.86)

However a basic tutorial and critique model could be problematic for younger students because learning happens through osmosis. However, Moore (2003, p.34) considers this to be problematic as it is unhelpful to suggest that visual skills are acquired through experience. The next model addresses this concern by showing how students are enabled to become more active learners, through formalising communication to share the experience of visual engagement in design.

9.2.2 The Sociocultural Approach to Fostering Designers' Visual Practices - Tutorial and Critique with Formalised Communication Model

Figure 9.2 illustrates a model of tutorial and critique with formalised communication that presents a theory of how visual practices can be fostered in design. This model is based on the following findings:

- Enabling communication was the third descriptive statement presented in Section 8.7. This statement observed how communication tools provided common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. Feedback assimilated through the communication tools heightened an individual's awareness of their own and others' visual practices, enabling self-reflection. However, communication could be impeded by students' perceptions of peer feedback.
- Educators' responses to stage two of the knowledge elicitation exercise presented in Tables 7.2, p.159 and 7.4, p.169 indicated that teaching-learning artefacts (Learning Log, Sherlock Holmes Personas and Self-evaluation Activity) assisted students to reflect on their visual actions with others, and then consider areas of change to their visual approaches.

Tutorial and Critique with Formalised Communication Model

Based on the findings presented above Figure 9.2 illustrates how designers' visual practices can be fostered through formalised communication during tutorials and critiques through the following process:

- Shows: The student shows the artefact they had designed based on the criteria of the design brief.
- Enabling communication: Communication tools provide common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. However, communication may be impeded by students' perceptions of peer feedback.
- Reflection: Feedback assimilated through the communication tools heightens an individual's awareness of their own and others' visual practices, enabling reflection on such practices and working approaches, that leads to new ways of engaging in visual contexts.

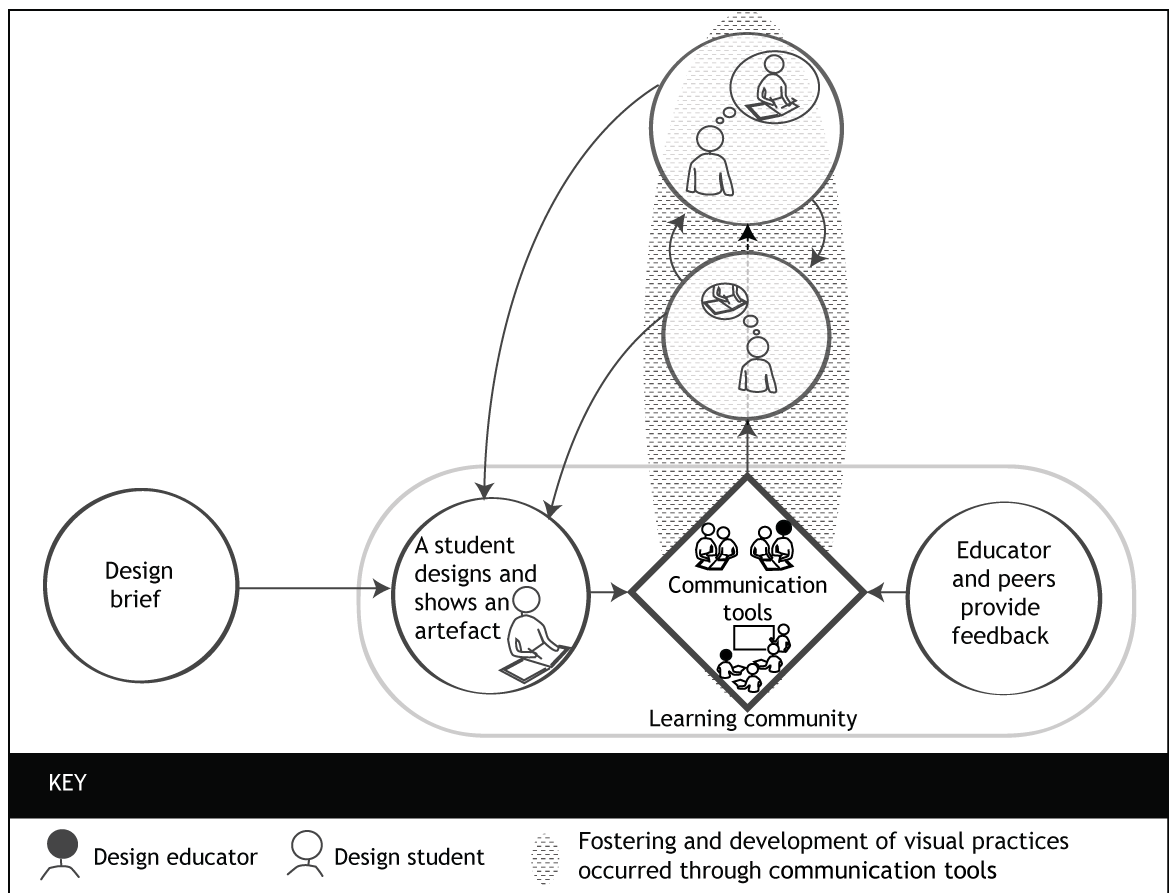


Figure 9.2: The sociocultural approach to fostering designers' visual practices – a model of tutorial and critique with formalised communication

The features of a tutorial and critique with formalised communication are:

- This model builds on the sociocultural approach presented in Section 9.1.2, p.220, through the provision of communication tools that make explicit the experience of visual engagement in design. This results in a more focused approach that enables students to become more actively involved in their visual development.
- The communication tools mediate individual and social interactions during a critiquing process. This results in visual development being guided by the community, rather than being entirely educator led.

9.2.3 The Sociocultural Approach to Fostering Designers' Visual Practices - Reflective Communication Model

Figure 9.3 illustrates a model of reflective communication – to suggest the potential influence the communication tools mentioned in the previous model may have on enabling students to direct their visual practices. This model is based on descriptive statement 8 – internalisation of the communication tools – presented in Section 8.7, p.214. The statement suggested that an individual internalises the common languages that the communication tools provide, enabling the observation of visual actions, and consideration and articulation of future visual practices. Based on this suggestion, the communication tools mentioned in the previous model may no longer be required once the individual has internalised the common language the tools provide, as the language will direct future actions. The implications of explicitly fostering designers' visual practices through enabling communication using a reflective communication model, are indicated below.

Reflective Communication Model

If students were to internalise the communication tools, to direct future visual actions, it is anticipated this would enabled a process of reflective communication illustrated in Figure 9.3. This process may involve:

- Self-awareness of visual actions: The student shows the artefact they have designed based on the criteria of the design brief. They have internalised the common language for describing the experience of visual engagement in design, it has become part of how they see the world.
- Reflective inquiry: The individual is able to observe and reflect on their visual actions and visual approaches, which they use to form a question to engage educators and peers in their work. The communication tools may no longer be required, as the students themselves have become the main enablers of communication.

- Discussion: The individual asks the questions to members of their learning community, feedback gained is taken on board depending on what they think is appropriate. Feedback leads to reflection on visual actions and approaches.

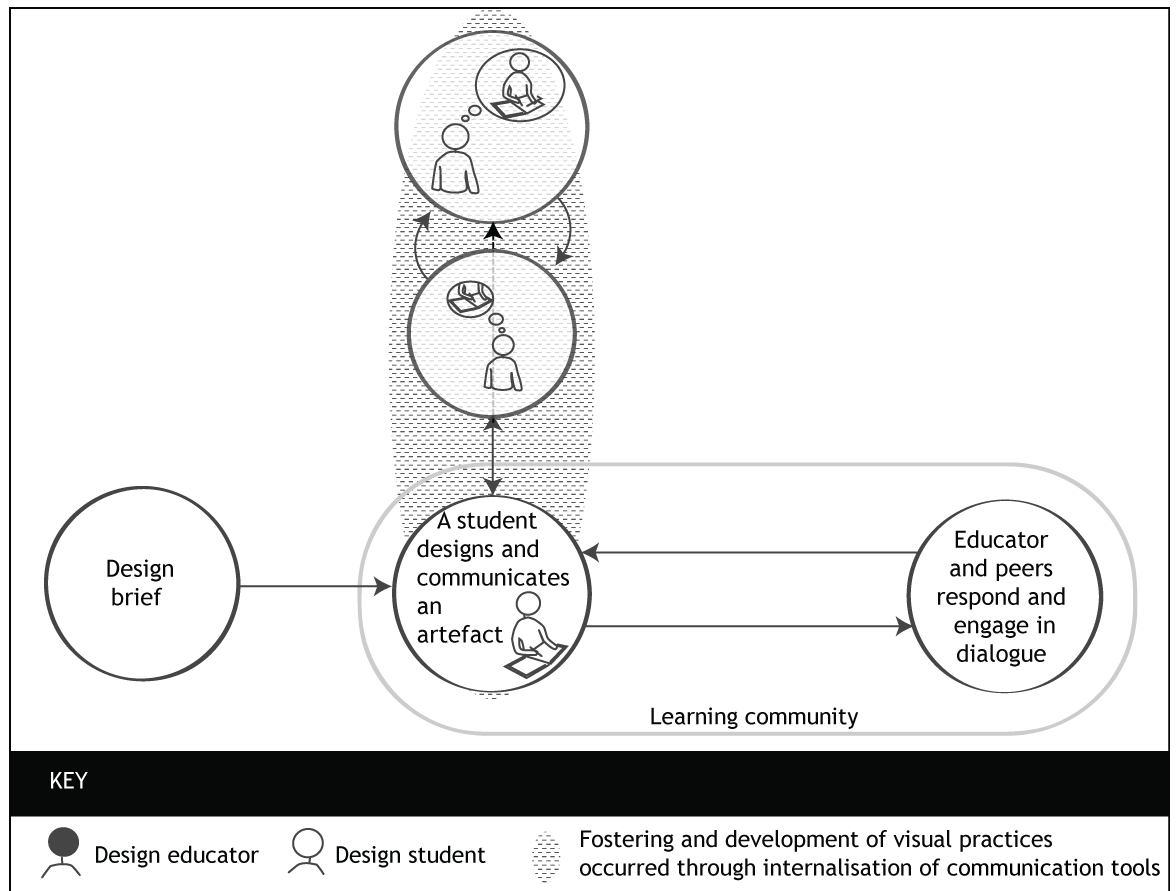


Figure 9.3: The sociocultural approach to fostering designers' visual practices – reflective communication model

In this model it is suggested that students are directing their learning through reflective inquiry and articulation of visual practices. This notion is based on the proposal that the common languages provided by the communication tools may become internalised, enabling students to know how to take control and develop their visual practices. At this point, the communication tools would no longer be required. Based on this notion, individual students would actively direct their own learning, in the process moving away from the critiquing model guided by the educator, presented in Figure 9.1, p.200, to a general dialogue with the learning community. This proposal is based on Vygotsky and Cole's (1978, p.57) notion of internalisation of psychological tools described in Section 9.2.1, p.240.

This model suggests the impact of the communication tools on fostering designers' visual practices, however, further research would be required to support the proposal presented above. In addition, research could be conducted on when the communication tools should be removed.

9.2.4 Summary of the Sociocultural Approach

The contextualisation of the findings from the study enhances theoretical knowledge of developing and fostering designers' visual practices. In the design framework in Table 5.1, pp.90-1 it was outlined that a sociocultural approach is defined as everyone has his or her own visual practices, which they form through social and cultural means. In this design framework, it was outlined that development occurs through working and participating in a community and that facilitating social interactions in different learning situations (i.e. design critique, tutorials conversations with tutors and peers) can enable reflection on visual practices. From the model presented above, communication as well as social interactions, are key enablers of developing and fostering designers' visual practices. In both these aspects, the educator is central to creating the supportive environment to enable social interactions and communication.

The effectiveness of fostering visual practices is dependent on the methods used to facilitate them and who is involved. This statement is based on consideration of the strengths and weaknesses of the three models presented above. In the first model – a basic tutorial and critique model – presented in Figure 9.1, p.220 the educator does not teach directly, they prepare the learning environment, provide critical feedback and guide individual development. This provides a student-centred approach to learning, where students learn, through osmosis from their educators, to engage in visual materials and practices. This model actively encourages students to develop visual actions and activities, as feedback received develops their engagement with visual materials and practices. However in this model, the students are involved in a passive learning process, and are less aware of how their visual development occurs. In the second and third models – Figures 9.2, p.223 and 9.3, p.225, the community and eventually the students, through externalising visual practices using the communication tools that describe visual engagement in design, guide visual development rather than this being entirely educator led. In the process, they move away from tutor-guided social interactions and communications to a student-centred approach through a collaborative venture using the communication tools. Therefore integrating communication tools that describe the process of visual engagement in design into the learning process has a positive impact by enabling:

- Students to question, articulate and improve their visual practices.
- The community (students and educators) to become more involved in enabling others to develop visually.

The models presented above are not to be seen as separate ways of developing and fostering visual practices, as each has its strengths and weaknesses; the models sit alongside and accompany each other. Further research would be required to understand the role of the educator when the communication tools are integrated into the learning process.

9.3 Sociocultural Characteristics of Visual Pedagogy

Based on the findings of this study, three sociocultural characteristics of visual pedagogy are presented below. These characteristics are features of a visual pedagogy that facilitate reflection on visual practices through mediating social interactions and enabling communication within a community. The three characteristics provide practical knowledge of how to enable design students to become more actively engaged in their visual inquiry.

9.3.1 First Characteristic: A Shared Understanding of Visual Practices

This section describes the process of fostering a shared understanding of and reflection on a community's visual practices. The description is based on the fourth descriptive statement – reflection on a community's visual practices, presented in Section 8.7, p.214. This statement outlined that development of a shared understanding of a community's visual practices presents an opportunity to enable an individual to observe, reflect and improve on how they apply their visual knowledge and skills. Building a picture of a community's visual practices by observing forms and depths of engagement over a number of visual contexts provides an opportunity to create communication tools in the form of a metaphor that provides a common language that externalise the experience of visual engagement. This common language enables the giving and receiving of feedback that promotes reflection on a community's visual practices. It is suggested that through the use of the common language, students' aspirations develop and the educator's role changes from one that directs to one that guides and oversees. However, an environment that supports social interactions is crucial to enabling peer feedback (i.e. where students set their own rules of engagement).

On examination of the data in Section 8.4.3, p.194 a shared understanding of visual practices was defined as:

Development of a shared understanding of a community's visual practices through a metaphor of looking and seeing, enables dialogue and feedback with the learning community that promotes observation, reflection and improvement in how an individual applies their visual knowledge and skills.

The Process of Enabling a Shared Understanding of Visual Practices

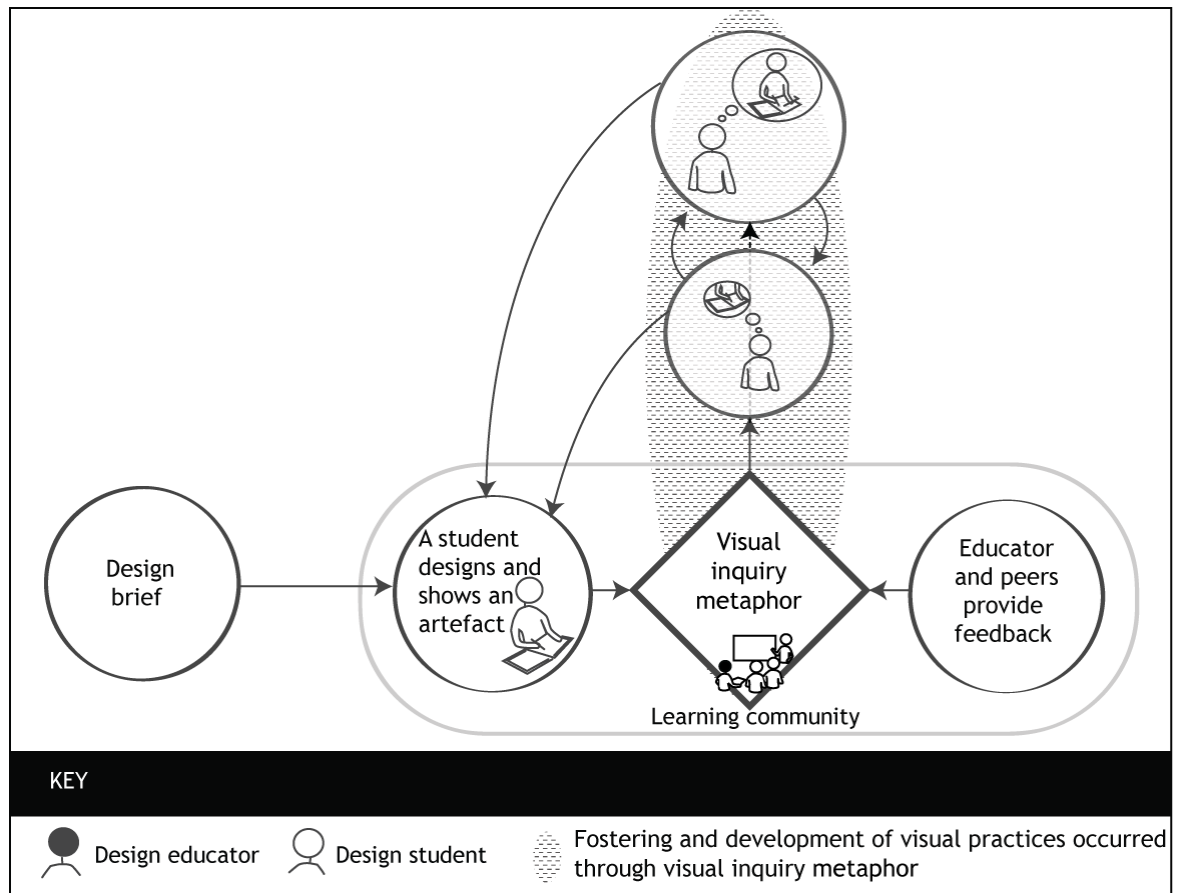


Figure 9.4: Illustration of how providing a visual inquiry metaphor enables a shared understanding of and reflection on a community's visual practices

The following description of the process presented in Figure 9.4 fosters a shared understanding of and reflection on a community's visual practices through:

- **Observation of a community's visual practices:** Building a picture of a community's visual practices by observing forms and depths of engagement over a number of visual contexts provides an opportunity to create communication tools in the form of a metaphor that provides a common language that externalise the experience of visual engagement – visual inquiry metaphor (*see* Appendix 2.2.3, p.329 for the process of creating the metaphor).
- **Communication of a community's visual practices:** This common language enables the giving and receiving of feedback during design critiques that promotes reflection on a community's visual practices. The educator creates a supportive environment to enable social interactions between students, where they are encouraged to set their own rules of engagement. Feedback assimilated through the metaphor promotes observation, reflection and improvement in how an individual applies their visual knowledge and skills.

The features of the process presented in Figure 9.4 are:

- Development of a shared understanding of a community's visual practices presents an opportunity to enable an individual to observe, reflect and improve on how students apply their visual knowledge and skills.
- The use of the visual inquiry metaphors develops students' aspirations, enhances articulation and relationships between peers, and educators and enables students to see from different viewpoints.
- The fourth descriptive statement presented above suggests that through the use of the visual inquiry metaphors the educator's role changes from one that directs to one that guides and oversees.
- The use of the visual inquiry metaphor fosters the community's visual practices in a holistic manner (i.e. behaviours, emotions and attitudes involved in development of a community's visual practices). This would be in line with Gee's (1996) understanding of literacy from a sociocultural perspective that involves the fostering of "ways of being in the world" (p.viii), to develop students' identities within their community. Therefore facilitating a way of being will transform a way of seeing.
- Vygotsky and Cole's (1978) notion of internalisation discussed in Section 9.2.1, p.219 it is suggested that students may internalise the common language provided by the visual inquiry metaphor and the language gained would structure what they intended to do, rather than being used in hindsight to reflect on their visual practices. At this point the communication tools may no longer be required; however this hypothesis would require further research. Potentially, there are other ways of using metaphors to enable visual development apart from as a method for peer feedback. For example, an educator in the second case study used it as a learning contract to enable engagement in the project.

9.3.2 Second Characteristic: Constructive Reflection on Visual Practices

This section describes processes of fostering an individual's ability to regularly self-reflect on their visual practices. This description is based on the fifth descriptive statement – regular self-reflection on visual practices, presented in Section 8.7, p.214. This statement is not restated in this section as it has been incorporated into the definition. On examination of the data in Section 8.5.3 a constructive reflection on visual practices was defined as:

Facilitating self-reflection on an individual's own visual practices presents an opportunity to enable regular planning and analysis of visual actions, developing the ability to justify them, engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves. Enabling self-reflection on visual practices takes time, but providing a self-

assessment framework that describes the process of reflecting on visual engagement enables self-assessment.

Processes that Enabling Constructive Reflection on Visual Practices

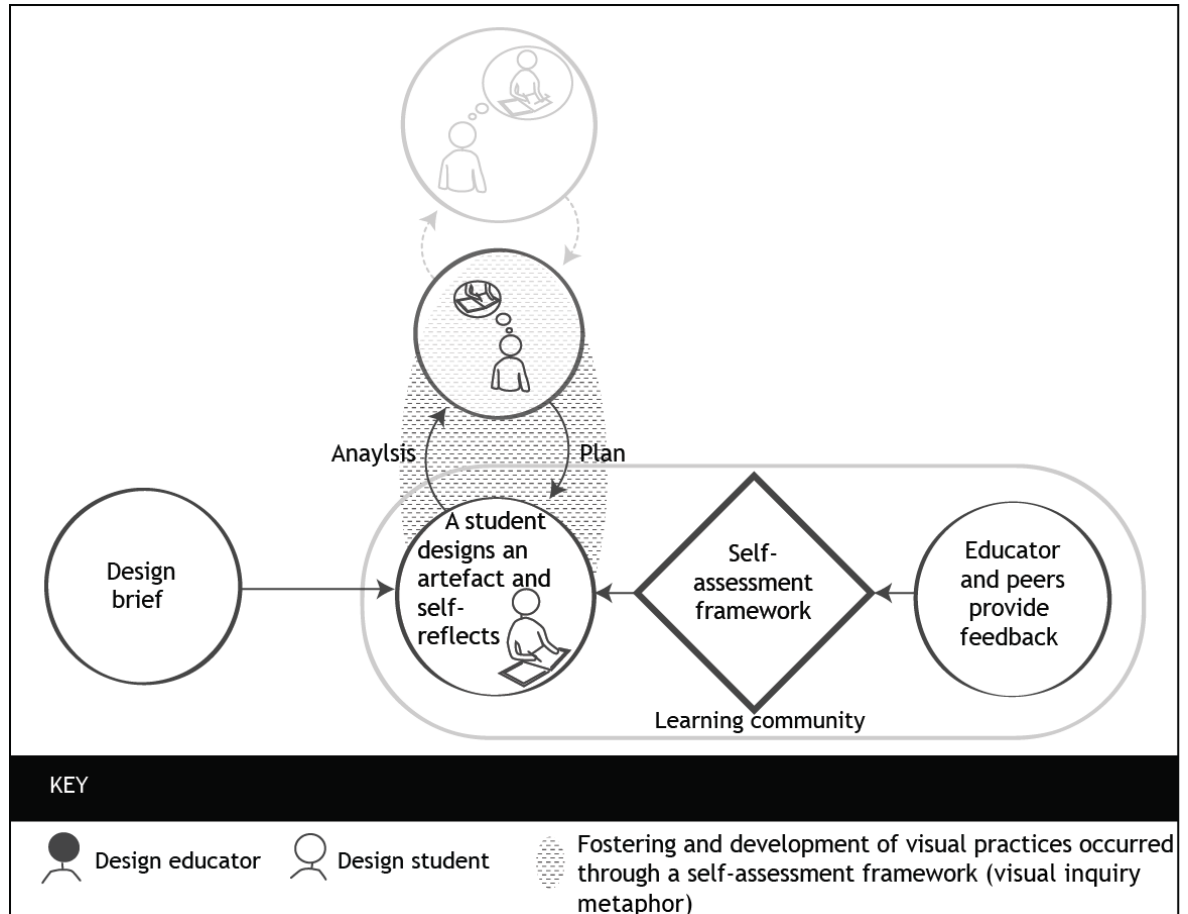


Figure 9.5: Illustration of how providing self-assessment framework enables an individual to regularly self-reflect on their visual practices

The following description of the processes presented in Figure 9.5 enables regular self-reflection on visual practices through:

- Encouraging regular self-reflection: Regular reflection occurs during planning and analysis of visual actions; depending on the individual or the stage in the project, self-reflection may extend to reflection on themselves.
- Supporting regular self-reflection: Enabling self-reflection on visual practices takes time, but providing a self-assessment framework that describes the process of reflecting on visual engagement enables self-assessment. In this research the visual inquiry metaphor presented in Appendix 2.2.3, p.329 provided a self-assessment framework.

The features of the process presented in Figure 9.5 are:

- Students engage in regular reflection on visual actions throughout a design project.
- This process enables the development of students' ability to justify their visual actions, engage and increase control of learning.
- Providing a self-assessment framework is a good starting point to enable students to develop their own approach. The framework can be removed when they are confident and have integrated self-reflection into their practice.

Based on the process presented above, there are further areas of research to enable students to engage in constructive reflection on visual practices:

- Investigation into enabling self-reflection: It was evident from the research that regular self-reflection on visual practices takes time to develop and absorb into a student's practice. It would be useful for future research to investigate the main triggers and most suitable occasions for its gradual introduction.
- Supporting self-reflection: It would be beneficial to explore and evaluate others self-assessment frameworks, apart from the visual inquiry metaphor, to enable self-reflection on visual practices.
- Investigation into the benefits of self-reflection: This study has shown self-reflection enables students to justify visual actions, as it has observed students integrating self-reflection into their visual practices, and as reflective practices take time to establish, prolonged investigation into the benefits of self-reflection would be valuable. For example, although the findings of this study did not show that self-reflection enables students to articulate their visual practices (*see* Section 8.5.3, p.203), improved articulation may occur after a prolonged period of regular reflection.

9.3.3 Third Characteristic: Critical Evaluation of Visual Practices

This section describes processes of fostering an individual's critical abilities to evaluate and self-evaluate their visual practices. This description is based on the sixth (critical evaluation of visual practices) and seven (critical self-evaluation on visual practices) descriptive statements, presented in Section 8.7, p.214. This statement is not restated in this section as it has been incorporated into the definition of this characteristic. On examination of the data in Section 8.6.3, p.211 critical evaluation of visual practices was defined as:

Developing an individual's critical abilities to evaluate and self-evaluate their visual practices presents an opportunity to enable more active seers who are able to engage with the visual world and develop self-knowledge. Providing evaluative structures and metacognitive regulation using common languages assists evaluation and self-evaluation of visual practices enabling individuals to analyse what they are seeing and develop self-knowledge of barriers and areas of improvement.

The Process of Enabling Critical Evaluation on Visual Practices

The following process presented in Figure 9.6 enables designers to evaluate what they are seeing and reflect on visual actions through:

- Selection of evaluative structures: Depending on the stage in the design process, different evaluative structures would be relevant to the context of the project or the learning environment. In this study, Reading the Visual, Reading the Narrative, Brainstorming, de Bono's Six Thinking Hats and a Peer Feedback Session developed students' ability to evaluate visual practices (*see* Appendix 2.2, p.313 for descriptions of these evaluative structures).
- Implementation of evaluative structures: Implementing the evaluation structures would require encouraging the students to create their own guidelines for using the tools. Students would then analyse their peers' work using the evaluative structures.
- Reflection on feedback: Students would gather the feedback and reflect on their visual actions.

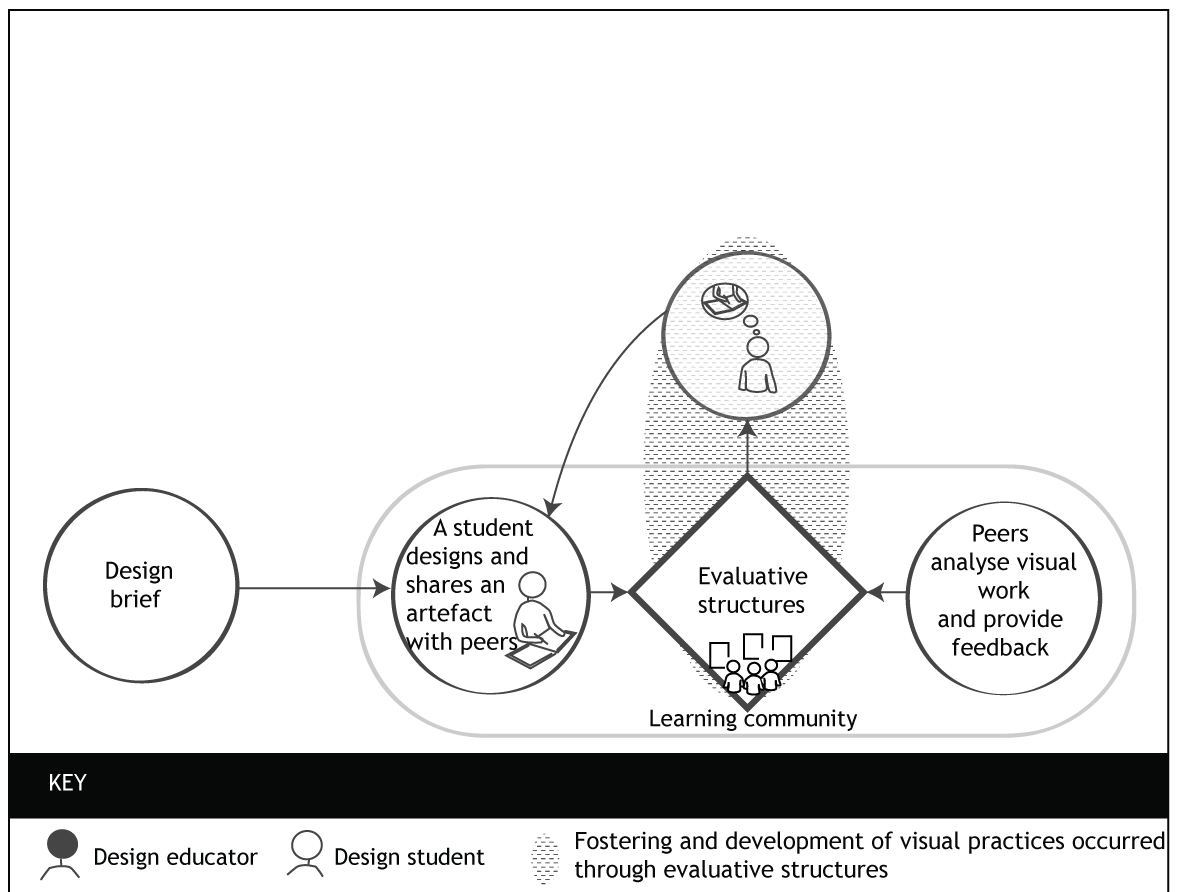


Figure 9.6: Illustration of how evaluative structures enable designers to analyse what they are seeing and reflect on visual actions

The key feature of the process presented in Figure 9.5 is that evaluative structures enable students to focus their analysis of what they are seeing, as without this they will be unaware of what to look for and the feedback received from peers may be limited. The evaluative structures would change to accommodate the context of the project or the learning environment.

The Process of Enabling Critical Self-Evaluation of Visual Practices

The following process presented in Figure 9.7 enables designers to self-evaluate their visual practices critically:

- **Review:** A student reviews their visual practices, using a common language that describes the experience of visual engagement in design. In this research, students used the terms looking and seeing (*see* Section 5.2.1, p.76) to categorise how they had visually engaged in a number of previous projects.
- **Discuss:** A student articulates what they have reviewed in their process and discusses this with another member of the learning community (peer or educators). In the process of this discussion they engage in reflexive dialogue and develop self-knowledge of barriers and areas of improvement. In this research this process was facilitated by the visual inquiry metaphors that enabled conversations on visual engagement.
- **Reflect:** A student summarises areas of improvement.

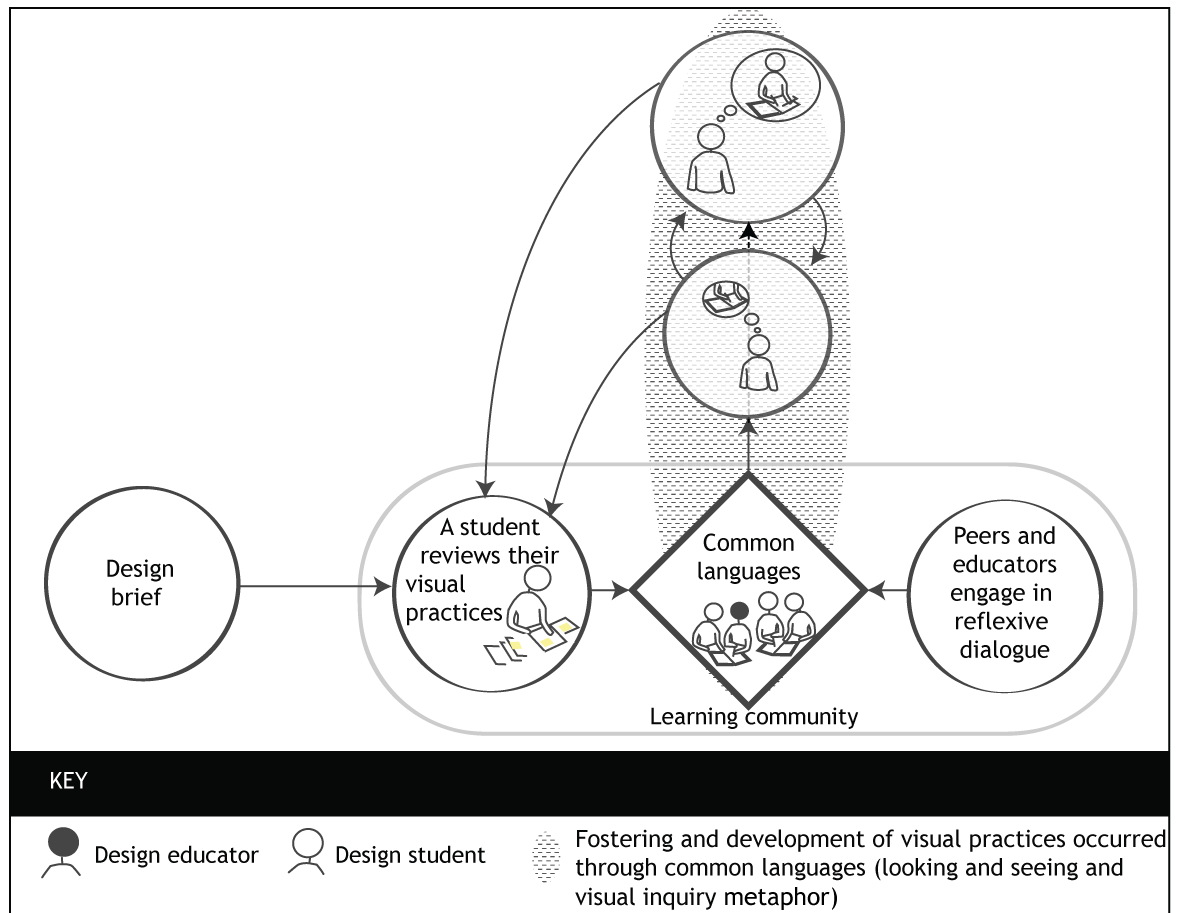


Figure 9.7: Illustration of how common languages (looking and seeing and the visual inquiry metaphor) enables designers to self-evaluate their visual practices critically

Through the provision of tools to describe and communicate the process of visual engagement, students are enabled to self-evaluate. Without such tools to trigger communication, students may find it difficult to articulate their visual practices, and an opportunity for development may be overlooked. In addition, through such conversations it was found in this study that by assisting students in a self-evaluation process, the educator became more aware of students' barriers, placing them in a better position to assist development (*see* Section 7.3.2, p.167).

9.3.4 A Summary of the Sociocultural Characteristics

The sociocultural characteristics are summarised in Table 9.1 based on the data analysis in Chapter 8. The presentation of the sociocultural characteristics had increased practical knowledge of how to enable students to become more actively engaged in their visual inquiry and assist others in the learning community. In essence, the sociocultural characteristics provide a framework to guide

design educators to integrate assessment for learning⁴⁹ (Black and William, 1998) into visual pedagogy. Therefore they offer design educators and institutions a platform for discussion from which to reflect upon and innovate visual pedagogy.

Table 9.1: The sociocultural characteristics

	The first characteristic	The second characteristic	The third characteristic
Name, definition and section reference of the characteristic	A shared understanding of visual practices: A shared understanding of and reflection on a community's visual practices (<i>see</i> Sections 5.3.1, 8.5 and 9.3.1).	Constructive reflection on visual practices: An individual's ability to self-reflect regularly on their visual practices (<i>see</i> Sections 5.3.2, 8.6 and 9.3.2).	Critical evaluation of visual practices: An individual's critical abilities to evaluate and self-evaluate their visual practices (<i>see</i> Sections 5.3.3, 8.7 and 9.3.3).
A description the learning attribute(s) involved in the development of designers' visual practices.	Reflection on a community's visual practices: Development of a shared understanding of a community's visual practices presents an opportunity to enable an individual to observe, reflect and improve on how they apply their visual knowledge and skills.	Regular self-reflection on visual practices: Facilitating self-reflection on visual practices presents an opportunity to enable individuals to plan and analyse visual actions regularly, developing the ability to justify them and engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves.	Critical evaluation of visual practices: Facilitating critical evaluation of visual practices presents an opportunity to enable more active seers who are able to engage with the visual world. Critical self-evaluation of visual practices: Facilitating critical evaluation and self-evaluation of visual practices presents an opportunity to develop self-knowledge of visual practices.

⁴⁹ The idea of assessment for learning is understood as a gap between where a learner is in their learning and where they need to be; their focus on assessment helps to promote deeper learning. In essence, this concept of assessment for learning considers that learners learn best when they: have a clear understanding of the criteria and can be involved in setting them; are encouraged to become involved in deciding learning goals; are given feedback that enables them to reflect and helps them decide on where to improve; and have the opportunity to promote high quality interactions that prompt questions about their learning. As Black and William (1998) defined assessment for learning as "all those activities undertaken by teachers and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (p.7).

Table 9.1: The sociocultural characteristics (continued)

	The first characteristic	The second characteristic	The third characteristic
Process(es) that have the potential to help foster designers' visual practices	<p>Observation and communication of a community's visual practices:</p> <p>Building a picture of a community's visual practices by observing forms and depths of engagement over a number of visual contexts, provides an opportunity to create communication tools in the form of a metaphor that provides a common language that externalises the experience of visual engagement. This common language enables the giving and receiving of feedback that promotes reflection on a community's visual practices. It is suggested that, through the use of the common language, students' aspirations develop and the educator's role changes from one that directs to one that guides and oversees. However, an environment that supports social interactions is crucial to enabling peer feedback (i.e. where students set their own rules of engagement).</p>	<p>Self-assessment framework:</p> <p>Enabling self-reflection on visual practices takes time, providing a self-assessment framework that describes the process of reflecting on visual engagement enables self-assessment.</p>	<p>Evaluative structures: Providing evaluative structures enables an individual to analyse what they are seeing.</p> <p>Self-evaluation of visual practices using common languages:</p> <p>Providing metacognitive regulation using common languages that describe the experience of visual engagement in design assists self-evaluation of visual practices enabling an individual to analyse and develop self-knowledge of barriers and areas of improvement.</p>

9.4 Summary

This chapter considered the research findings through contextualisation and establishment of links with the literature review presented in Chapters 2 and 5. The discussion has highlighted how the research aim: to increase our knowledge of developing and fostering designers' visual practices, has been addressed in two ways. Through the:

- Presentation of theoretical knowledge of developing and fostering designers' visual practices presented in Section 9.2, in the form of three sociocultural models.
- Presentation of practical knowledge to foster designers' visual practices in Section 9.3, in the form of three sociocultural characteristics.

A response to the research question was generated through the presentation of theoretical and practical knowledge. The discussion has highlighted the implications of addressing this aim and areas of further research have been identified. The next chapter presents the conclusions of this study and clearly states the contributions to new knowledge.

Chapter Ten: Conclusions

10.1 Overview

This chapter presents an overview of the thesis, by summarising the foundations, conclusions, reflections, limitations and recommendations of the study, and provides a statement of the research contributions to new knowledge.

10.2 The Foundations of the Study

This section summarises the foundations of the study, through the presentation of its rationale, identified research opportunities and audience, research aim and design framework used to explore the research phenomena.

Section 2.3, p.23 argued that visual abilities are fundamental to a designer's practice, as they assist observational thinking and communicative skills. However, literature in design education does not explicitly describe the learning attributes and processes involved in the development of such abilities; consequently there is a lack of shared knowledge about visual development and the means by which it is fostered in design. Only through a review of the educational models (experiential and reflective) in Section 2.4, p.27 can it be implied that visual development occurs through five basic principles: doing, dialogue, demonstration, critical feedback and self-reflection.

Alternatively, it can be implied from the literature in Section 2.2, p.16 that development occurs through a linguistic visual literacy approach. Additionally, there is insufficient practical knowledge of what actually happens during a design student's time in education. It was deduced that if knowledge of theory and practice was made explicit, it would provide a platform for debate and innovating visual pedagogy; this rationale contributed to the formulation of the question of how designers' visual practices are developed and fostered.

Section 1.2, p.4 identified two research opportunities to increase our knowledge of the research phenomenon. The first was the framing of a sociocultural approach, through investigating how the research phenomenon is developed and fostered in design. The second opportunity was concerned with innovating visual pedagogy, through exploring and expanding the sociocultural approach. The first opportunity came from a lack of shared knowledge about the research phenomenon and reflecting on the preliminary research presented in Chapter 4. The second opportunity built on the first, to identify where students can become more active learners, who can take greater control of their visual development.

Based on these two research opportunities design educators, theorists and visual literacy academics were the intended audience of this research. It is anticipated by engaging in this research that design educators would have a clearer understanding of visual development and how to innovate

visual pedagogy. The field of design education lacks critical writing on and research into how we teach design. Addressing these research opportunities help contextualise design practices and explore the process of design education; in doing so it offers design theorists a critical understanding of the research phenomenon and methods to further investigate our understanding of design education. A sociocultural approach offers visual literacy academics a platform to reconsider the values and limitations of applying a linguistic approach to the visual, and consider an alternative approach to understand, observe and foster visual development.

The study aimed to increase our knowledge of developing and fostering visual practices. This aim was addressed through establishing a theoretical framework in the form of the design framework presented in Table 5.1, pp.90-1. This framework determined the learning attributes and processes used to foster designers' visual practices. It comprised of the underlying theory of a sociocultural approach and demonstrated this theory through three characteristics, a shared understanding, reflective articulation and critical questioning of visual practices. This design framework formed the basis to explore and expand a sociocultural approach, and therefore guided the investigation.

10.3 The Conclusions of the Study

Realistically, the study did not intend to provide a definitive answer to the question of how designers' visual practices are developed and fostered. It merely hopes to contribute to the discussion through providing a learning theory of developing and fostering visual practices. Based on the preliminary observations presented in Chapter 4 and data analysis presented in Chapter 8, two key conclusions were drawn:

Conclusion one: Designers' visual practices are fostered through a sociocultural approach

A sociocultural approach was not apparent from the outset of the research programme; it was assumed that visual development occurs on an individual basis through cognitive means alone, and requires formal training: That is, there is a universal knowledge of visual language and processes (visual reading and writing skills) that an individual can learn through cognitive means. This assumption was based on a psycholinguistic view of language and literacy that has long underpinned visual literacy (*see* Section 2.2, p.16). The following observations that led to reconsidering the validity of the initial assumption were made from preliminary empirical research into designers' visual development:

- Observation one: Levels of visual literacy skills are not consistent with design experience.
- Observation two: Comprehending visual meaning involves more individual judgement and cultural factors.

It was understood that the experiment material was not flawed, as the research strategy outlined in Section 3.2, p.38 had been incorporated into the material. As outlined in Chapter 4, these observations led to questioning of a psycholinguistic approach to visual language and literacy upon which the research strategy had been based. Before embarking on the preliminary research, it was unclear how designers' visual literacy skills actually developed. It could only be speculated that it was through the development of a universal visual knowledge and biological process (visual reading and writing skills) and experiences with visual texts. Observation one contributed to questioning how a designer develops to be a visual expert, as specific levels of development could not be determined. Furthermore, observation two indicates the complexity of developing visual literacy skills in design, as it was observed that as tasks in the visual experiment became more complex, and knowledge was applied to a specific task, a greater degree of individual judgement was exercised by all three populations. In other words, everyone has their own way of seeing; therefore development occurs through gaining the ability to reflect on one's own experience and development (which the literature in Section 2.4, p.27 had implied to be one explanation of the research phenomena).

Furthermore, a psycholinguistic approach offers a predetermined route to becoming a design expert. During this developmental process, students would be guided by the design educator in the development of visual knowledge, which would facilitate an awareness and observation of visual imagery in the outside world. This would lead to developing basic knowledge and comprehension skills. However, although this viewpoint aids awareness and observation, it limits the development of higher order skills, such as analysis, synthesis and evaluation of visual experiences and processes. This suggests that equipping students with a generic knowledge and set of visual reading and writing skills will aid them to observe the world around them, but may also lead to sterile design practices and fail to develop their ability to apply their visual skills. Based on the personal nature of how visual skills develop, an effective approach to fostering visual development would involve design educators helping students to devise their own approaches to engage in visual contexts.

In Section 5.2.3, p.80 through the presentation of literature on a sociolinguistic view of literacy, the alternative understanding of a designer's visual development was framed as a sociocultural approach. This argues that everyone has his or her own visual practices, which they form through social and cultural means, where designers' visual practices are constructed *in situ* through facilitating social interactions. These interactions enable individuals to reflect on their visual practices and develop approaches, which are then used to engage and develop visual contexts.

Descriptive statement 2, a finding of the data analysis in Section 8.7, p.214 supported this viewpoint; through identifying the design educator creates an environment to enable informal social interactions and dialogues between students and themselves. That is, tutorials and design critiques are where designers' visual practices are presently fostered and developed. These learning environments enable a student-centred approach, where students show their work and the educators engage in dialogue and provide critical feedback that enables them to reflect on their visual actions (*see* Section 9.2.1, p.219).

The following implications highlight the significance of recognising that designers' visual practices are fostered through a sociocultural rather than a psycholinguistic approach:

- Individual visual development of higher order skills (application, analysis, synthesis and evaluation of visual experiences and processes) are fostered in designers through social and cultural means. That is, social interactions and dialogues are the key enablers that prompt designers to reflect on visual practices. Cognitive skills are therefore a by-product of social interactions and dialogues.
- At the outset of the thesis a basic and sophisticated level of visual literacy was highlighted from the literature (*see* Section 2.2, p.16). The basic level was concerned with reading

images, which is learnt at an early age through social activities. Whereas, the sophisticated level required formal education to enable the interpretation and construction of images, which are part of a designer's practice. However, having outlined a sociocultural approach in Section 9.2, p.219 it is argued that designers' visual practices are mainly fostered through social activities and dialogues, and not through formal teaching.

- This approach rejects the perceived view that designers have a higher level of visual literacy or acuity than individuals without design training. Individuals without design training are the people who are designed for, who are so used to their way of living that they are over familiar with their surroundings. Based on a sociocultural approach where everyone has his or her own visual practices, an expert designer is able to engage actively in visual contexts, as they have developed their own approaches to enable them to see the familiar in unfamiliar ways. In the process, gaining an understanding of the situation that includes more than was immediately apparent. Thus fostering visual literacy in design has a broader focus than the aesthetic – the reading and writing of images – as understood at the outset of the thesis; the concern moves to coaching designers' thinking and developing approaches that inform how they see.

Conclusion two: Designers' visual practices can be fostered through a sociocultural approach by enabling communication

It was recognised there was a significant opportunity to expand the sociocultural approach to enable students to become more active learners who could develop their own visual practices. Through the provision of communication tools that provide a common languages (looking and seeing) to share the experience of visual engagement in design, communication is enabled between occupants (students to student, student and educators) developing their capability to identify and articulate where visual development is required (*see* Section 9.2.2, p.222). Through the provision of communication tools, students become more aware of how they can visually develop and are more able to reflect on their visual practices.

The expansion of the sociocultural approach in this thesis has been demonstrated in practice through three sociocultural characteristics – a shared understanding of, constructive reflection on, and critical evaluation of visual practices – which are features of a visual pedagogy that facilitate reflection on visual practices through mediating social interactions and enabling communication within a community (*see* Section 9.3, p.228). The sociocultural characteristics are a platform for discussion, from which design educators can debate the sociocultural approach and innovate visual pedagogy in design. In essence, the characteristics provide an approach to integrating assessment for learning in design.

The communication tools provided a language to describe the aspects and processes of visual engagement. The analysis suggested students would internalise the common language provided by the communication tools and the language gained would structure what they intended to do, rather than being used in hindsight to reflect on their visual practices (descriptive statement 8 in Section 8.7, p.214). At this point the communication tools may no longer be required; however this hypothesis would require further research.

It is important to end this section by stressing that visual development is enabled in design education through social interactions and dialogues; however, the effectiveness of fostering visual practices is dependent on the methods used to facilitate them and who is involved (*see* Section 9.2.4, p.226).

10.4 Reflection on the Research Study

This section highlights the research study's strengths, weaknesses and areas of improvement. The purpose of presenting this reflection is that the course of engaging in this research was not straightforward; the view of how visual practices develop changed from a psycholinguistic to a sociocultural viewpoint, which shifted the focus and research approach, from the original intent. Therefore what follows is a reflection on the shift in focus, paradigms, design and strategy and the processes used to collect, analyse and interpret the data.

A shift in focus (from digital visual skills to the development and fostering of designers' visual practices) occurred following the preliminary research presented in Chapter 4. This was due to inconclusive and unexpected results, which led to questioning how designers' visual skills actually develop. Not only did asking this question lead to a new direction – a sociocultural approach – its exploration resulted in a new contribution to knowledge. This meant the ontology of the thesis moved from an understanding that development occurs through cognitive means alone, to understanding individual development in design happens through social and cultural means. Therefore, the preliminary research set a foundation upon which to present a new direction.

Following the preliminary research, it was recognised that quantitative research was not sufficient to gain an insight into designers' visual development. Yet only through conducting the preliminary research was this apparent. Prior to this study, there was limited knowledge about the research area, therefore the intent of the preliminary research was to gain an overview of designers' visual development from novice to expert. The experiment had indicated everyone had their own visual practices – however in coming to this realisation, the use of a numerical form and empirical approach to investigate visual development came into question. A predetermined standard of measurement and observation of literacy levels, such as literate or illiterate, can only be seen as a snapshot of visual literacy skills, assessing what students know at a particular moment, instead of how they can apply their knowledge and understanding to a given task. Furthermore, a predetermined standard of measurement against others is meaningless, as development occurs on a personal level. In essence using a numerical form and an empirical approach to measure designers' visual development does not capture the social and cultural aspects involved.

During collection of the preliminary research, informal conversations occurred with design students, educators and designers. These supported the need to conduct research into designers' visual development; on reflection these conversations were as relevant to the study as the key observations made from the preliminary research. However, at the time, they were not captured, as the ability to articulate designers' visual development was limited. Further research enabled by

these findings could formalise an approach to the capture of verbal descriptions of developing and fostering designers' visual practices.

Therefore, taking a new direction following the preliminary research shifted paradigms to allow qualitative research to enable the capture of the social and cultural aspects involved in visual development (*see* Section 5.4.1, p.88). This shift led to revising the research design and strategy (design-based research), to externalise the underlying attributes and processes of developing and fostering visual practices through the designing, and testing, of teaching- learning artefacts (*see* Section 5.4, p.88). This resulted in two research phases: design experiments with design students and user testing with design educators (*see* Section 5.4.3, p.93). During these research phases, it was important to work in collaboration with co-participants, reflecting on and responding to feedback gained. On reflection, the validity of the design experiments and user testing could have been improved through gaining anonymous feedback from the students about their experiences of using the teaching-learning artefacts. Nevertheless, the main value in adopting design-based research in this study is the development of a clear understanding of the complexity of the setting and the relationships that occur through an immersive experience in and engagement with the learning situation. Therefore adopting a design-based research approach meant the research findings were reflective of practice, and complemented the educators' beliefs. This reflects Juuti and Lavonen's (2006, p.62) understanding that the results of design-based research should "be in the zone of the proximal development of teachers' pedagogical knowledge" (Juuti and Lavonen, 2006, p.62) so that the results can be effectively and easily related to current teaching practices.

This section ends with a reflection on the data collection, analysis and interpretation process that was adapted from Miles and Huberman's (1994) activities of qualitative data analysis (data reduction, display, and drawing and verifying conclusions). This process reviewed the data gathered from both research phases. As described in Section 5.4.4, p.98 to draw and verify conclusions the data were reduced through a framework for analysis, descriptive and pattern coding, memoing and data display that highlighted where patterns had occurred. Through this process descriptive statements emerged that explain the learning attributes and processes involved in developing and fostering designers' visual practices presented in Section 8.7, p.214. In Chapter 9, the descriptive statements were visualised and contextualised in relevant theory, to illustrate how the study had addressed the research aim and question. Through the discussion in Chapter 9, areas of further research were identified which are summarised in the next section.

10.5 The Limitations and Recommendations of this Study

There are two key limitations of this study:

1. The data used to identify, explore and expand the sociocultural approach were sourced from a single learning environment and community. The findings gained from this research may have been hindered by the first year students' lack of subject knowledge, which would have limited their ability to reflect in-depth on their visual practices.
2. There are methodological constraints due to the implementation of a design-based research strategy, which may affect the ability to generalise the findings.

Based on these limitations the following recommendations for further research are made:

1. As the study is based on a single learning environment and community, further research is recommendation to investigate the theoretical knowledge of developing and fostering designers' visual practices presented in Section 9.2, p.219 in other educational contexts with the intent of refining the theory of fostering designers' visual practices through a sociocultural approach. In particular, as it is crucial, it would be necessary to investigate the role of the educator, in the second (tutorial and critique with formalised communication) and third (reflective communication) sociocultural models presented in Section 9.2.
2. Further research is recommendation to develop practical knowledge of developing and fostering designers' visual practices presented in Section 9.3. Although it may not be possible to generalise the findings of this study to other settings, the three sociocultural characteristics in Section 9.3 are seen as design principles. That is, the characteristics themselves provide a language based on the sociocultural approach to encourage a debate around the fostering of students' visual practices within a design institution, and help define features of visual pedagogy. It is important to understand that they do not prescribe, or even recommend perfect versions of either. Rather, they provide a language to help to define features of visual pedagogy within design education. Therefore further research through applying, adopting and adapting of the characteristics within design or across the other educational disciplines would lead to further research into the sociocultural approach's value in other settings. For example, the characteristics could be developed as a set of guidelines for new design educators, helping them to understand how to develop students' visual practices. In particular, it would be necessary to note the long-term effect of introducing the characteristics in other setting and understanding how they change depending on the level of study. Table 9.1, p.236 would inform such an investigation. More specific areas of development of each sociocultural characteristic have been highlighted in Section 9.3.

10.6 Original Contributions to Knowledge

This study contributes to new knowledge about the learning attributes and processes of fostering designers' visual practices.

The key contributions of this study have been two fold; the first contribution development of our theoretical knowledge of the developmental learning attributes and processes of fostering designers' visual practices, framing this understanding as a sociocultural approach. The second contribution builds upon this foundation to develop our theoretical and practical knowledge of innovating process to fostering of designers' visual practices through expanding the sociocultural approach.

The key contributions of this study have been two fold; the first contribution developed theoretical knowledge of the developmental learning attributes and processes of fostering designers' visual practices, framing this understanding as a sociocultural approach. The second contribution built upon this foundation to develop theoretical and practical knowledge of innovating processes to foster designers' visual practices through the expansion of the sociocultural approach.

The first contribution is supported by the results of the preliminary research in Chapter 4 and data analysis in Chapter 8. That is, this study has contributed to the following findings:

- The developmental learning attribute of a sociocultural approach: Preliminary research indicated everyone has his or her own visual practices, leading to the notion that designers' visual practices develop through reflection. Data was found to support that development occurs through working and participating in a community. Feedback gained through a community enables an individual to reflect on visual practices (*see* Section 8.3.3, p.185).
- The processes of fostering designers' visual practices through a sociocultural approach: On examination of the data, it was indicated that designers' visual practices are fostered through informal social interactions and dialogues. The educator creates an environment to enable informal social interactions and dialogues between students and themselves. Thus, the educator is a facilitator, guide and nurturer of individual development (*see* Section 8.3.3).

The following findings of this study (which were part of the analytical results presented in Section 8.7, p.214) support the second contribution, developing theoretical knowledge of innovating processes to foster designers' visual practices through expanding the sociocultural approach:

- Enabling communication: Communication tools provided common languages (looking and seeing) to share the experience of visual engagement in design; in the process enabling

communication between occupants (students to student, student and educators) through developing their capability to identify and articulate where visual development was required. Feedback assimilated through the communication tools heightened an individual's awareness of their own and others' visual practices, enabling self-reflection. However, communication could be impeded by students' perceptions of peer feedback.

- Internalisation of the communication tools: It is suggested from the data analysis that an individual internalises the common languages that the communication tools provide, enabling the observation of visual actions, and consideration and articulation of future visual practices.

The second contribution was further supported through this study's identification of three sociocultural characteristics, providing practical knowledge of how to enable students to become more actively engaged in their visual inquiry and assist others in the learning community (*see* Section 9.3, p.228):

- Shared understanding of visual practices: The first characteristic is defined as a shared understanding of and reflection on a community's visual practices. Development of a shared understanding of a community's visual practices through a metaphor of looking and seeing, enables dialogue and feedback with the learning community that promotes observation, reflection and improvement in how an individual applies their visual knowledge and skills.
- Constructive reflection on visual practices: The second characteristic is defined as an individual's ability to self-reflect regularly on their visual practices. Facilitating self-reflection presents an opportunity to enable regular planning and analysis of visual actions, developing the ability to justify them, engage and increase control of learning. Depending on the individual, self-reflection may extend to reflection on themselves. Enabling self-reflection on visual practices takes time, but providing a self-assessment framework that describes the process of reflecting on visual engagement enables self-assessment.
- Enabling critical evaluation of visual practices: The last characteristic is defined as an individual's critical abilities to evaluate and self-evaluate their visual practices. This development presents an opportunity to enable more active seers who are able to engage with the visual world and develop self-knowledge. Providing evaluative structures and metacognitive regulation using common languages assists evaluation and self-evaluation of visual practices, enabling individuals to analyse what they are seeing and develop self-knowledge of barriers and areas of improvement.

The study shifts theoretical and practical knowledge of how designers' visual practices are seen to be developed and fostered; moving from a critique-based process led by the design educators, to a

general dialogue facilitated in collaboration with the learning community. Providing a deeper understanding of fostering designers' visual practices in the form of a sociocultural approach, offers design education potential new directions and opportunities as outlined in this study.

Glossary

For the purpose of this study the terms that follow have been defined.

A sociocultural approach: A theory on the developing and fostering of designers' visual practices. The theory puts forward that everyone has his or her own visual practices, which they form through social and cultural means. That is; learning happens through social interactions and dialogues, which enable reflection on visual practices, informing future visual inquiry.

A shared understanding of visual practices: A feature of a visual pedagogy that allows development of a shared understanding of and reflection on a community's visual practices. This is achieved through the process of observing and communicating a community's visual practices.

Constructive reflection on visual practices: A feature of a visual pedagogy that facilitates an individual's ability to self-reflect regularly on their visual practices. This is enabled through a self-assessment framework that describes the process of reflecting on visual engagement.

Sociocultural characteristics: Features of a visual pedagogy that facilitate reflection on visual practices through mediating social interactions and enabling communication within a community.

Co-participants: The inclusion of different types of expertises in the design and analysis of the teaching-learning artefacts.

Design critique: A "process of discourse on many levels of the nature and effect of an ultimate particular design" (Blevis *et al.*, 2007, p.24)

Design-based research in an educational context: "The study of learning in context through the systematic design and study of instructional strategies and tools" (The Design-Based Research Collective, 2003, p.5).

Learning attitude: To be used synonymously with the learning attitudes involved the development of designers' visual practices in the context of this research.

Digital-based domain: To be used synonymously with screen-based interactive media in the context of this research.

Experiential educational model: An educational philosophy that is central to design education (Oxman, 1999, p.160), where meaning is made from interacting directly with an experience, with a focus on the social interaction between a learning community(ies) to help form an individual's knowledge. As Kolb's (1984) Experiential Learning Theory (ELT) is defined as "the process whereby knowledge is created through transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p.41).

Fostering: Where one person or a resource is used to aid the development of another.

Learning Log: Depending on how it is used by a student the Learning Log can be viewed as a reflection tool on design actions or self-reflection.

Looking: A passive visual experience where the designer looks around at the familiar; they recognise what they find, and learn through trial and error without necessarily understanding how or why they have achieved the final result.

Learning community: "Learning communities are made up of people who share a common purpose. They collaborate to draw on individual strengths, respect a variety of perspectives, and actively promote learning opportunities. The outcomes are the creation of a vibrant, synergistic environment, enhanced potential for all members, and the possibility that new knowledge will be created." (Kilpatrick *et al.* 2003, p.13)

New Media or Multimedia: These two terms are sometime used interchangeably and refer to the practice of designing digital an interactive content for digital media such as the internet, World Wide Web, video games, interactive television, mobile phones, CD-ROMs and DVD-ROMs.

Pedagogy: "Any conscious activity by one person designed to enhance learning in another" (Mortimore, 1999, p.3).

Personas: "Personas are archetypal users of an intranet or website that represent the needs of larger groups of users, in terms of their goals and personal characteristics. They act as standins for real users and help guide decisions about functionality and design. Personas identify the user motivations, expectations and goals responsible for driving online behaviour, and bring users to life by giving them names, personalities and often a photo. Although personas are fictitious, they are based on knowledge of real users. Some form of user research is conducted before they are written to ensure they represent end users rather than the opinion of the person writing the personas" (Calabria, 2004, p.1).

Processes: To be used synonymously with the learning processes that are used to help foster designers' visual practices in the context of this research.

Print-based Domain: To be used synonymously with print-based material in this research context.

Critical evaluation of visual practices: A feature of a visual pedagogy that facilitates an individual's critical abilities to evaluate and self-evaluate their visual practices. This is enabled through the provision of evaluative structures and common languages that describe the experience of visual engagement in design.

Reflection: To look back at a situation and to engage in reflective thought. Reflective thought is "Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and further conclusions to which it tends... it is a conscious and voluntary effect to establish belief upon a firm basis of reasons" (Dewey, 1991, p.6).

Reflective educational model: An educational philosophy that Schön (1983; 1987) and Schön and Wiggins (1992) have linked to the way that a designer works, viewing a designer as a Reflective Practitioner. This involves thoughtfully considering one's own experiences in applying knowledge to practice, whilst being coached by professionals in the discipline (Schon, 1983; 1987). This helps the professionals form knowledge about how they are working and learning, leading in new directions.

Seeing: An active visual experience, where the designer inspects the familiar until it becomes unfamiliar; stepping outside and seeing the bigger picture and questioning what they do not understand.

Skill: Expertness, practised ability, facility in an action; dexterity or tact (Concise Oxford Dictionary, 1995).

Teaching-learning artefact: Artefacts designed in collaboration with co-participants during the design experiments and used by the design educators in the user testing phases of this research to foster and created a debate about developing designers' visual practices.

Visual Design Thinking: A designer's visual communication with themselves that occurs through visual discrimination and awareness, and the process of sketching; both help to observe the world and to develop an insight into the design problem and solution.

Visual literacy abilities: Avgerinou (2001) has been fundamental in creating an index of twelve visual abilities, which she defined as; Visual Discrimination, Visual Association, Constructing Meaning, Knowledge Of Visual Vocabulary And Definition, Knowledge Of Visual Conventions, Visual Reasoning, Visual Reconstruction, Critical Viewing, Visualization, Visual Memory, Visual Thinking, and Reconstructing Meaning.

Visual pedagogy: Any conscious activity by one person designed to enhance visual learning in another.

Visual practices: Based on the notions of Street and Lefstein (2008, p.143) regarding literacy practices, visual practices for this research programme are: the general cultural ways of utilising visual language that people draw upon in their lives. In the simplest sense, visual practices are what people do with visual literacy.

Visual Production Thinking: A designer's visual communication with others, which occurs through three components: (a) Knowledge of visual language and visual communication; (b) Knowledge and skills of medium(s) and material resources used to communicate a visual message; and (c) Knowledge of their audiences.

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APPENDIX ONE: Preliminary Research - Methodology, Data Collection and Analysis

1.1 Introduction and Methodology

The objective of the visual experiment was to explore which visual skills are required when working in a screen-based medium. To achieve these objectives an empirical visual experiment was designed and conducted with print-based and digital-based professional design practitioners, design students and non-designers. The participants engaged in two conjoined tests devised to assess their visual production skills⁵⁰; one test digital and the other print based. Descriptive analysis was used to compare these two activities.






	BLOOM'S TAXONOMY	AVGERINOU'S 12 VISUAL ABILITIES	DIGITAL MEDIUM
<div>↑</div> <div>Low mental processes</div> <div>↓</div>	1. Knowledge Remembering previous learned information	Knowledge of visual vocabulary and definition Visual association Visual discrimination Knowledge of visual conventions Visual thinking Visual reasoning Visual memory	
	2. Comprehension Grasping at the meanings of information	Knowledge of visual conventions Constructing meaning Critical viewing Visual thinking Visual reasoning Visual memory Visualisation	
	3. Application Applying knowledge to actual situations	Visual abilities to be selected based on the findings of the visual experiment	
KEY  Knowledge of visual component(s) which may have been conditioned in use in a digital medium  Characteristics of new media (interaction and digitality) that may effect visual skills comprehension of visual component(s) in a digital medium			

Figure 1.1: Avgerinou's (2001) twelve visual abilities mapped to Bloom's Taxonomy (1956)

⁵⁰ Visual literacy skills chosen for the experiment are those that a designer would use to communicate visual meaning (visual production thinking) (see Section 2.3.2, p.25) and not the skills they would use to solve a problem (visual design thinking) (see Section 2.3.1, p.23). This experiment focused on visual production thinking, as it is necessary to understand if visual literacy skills change from one domain to another.

The methodological base for this experiment was informed by the research strategy outlined in Section 3.2, p.38. The two tactics underlying the research strategy to explore visual development in a design student in a digital era were incorporated into the visual experiment in the following way:

- First tactic: The first tactic considers what to observe; that is construction of visual knowledge through biological processes (visual reading and writing skills). In the experiment, visual reading and writing skills were observed by asking participants to apply each skill three times in each domain; either by selecting a visual component(s)⁵¹, or selecting from a range of images or different book genres, i.e. mystery, comedy and romance. To determine which of the production visual literacy skills were to be selected for the experiment, Avgerinou's (2001) twelve visual abilities, shown in Figure 1.1, were mapped against two categories (knowledge and comprehension) of Bloom's (1956) Taxonomy of Educational Objectives. This exercise was completed to understand where digital processes and practices might influence designers' visual literacy skills. The experiment draws on visual literacy skills mapped to Bloom's knowledge and comprehension⁵² as an initial point to investigate the use and development of such skills in different domains. To expand on Figure 1.1, at the knowledge category it was first considered whether there is a change in visual knowledge when working in a digitally based environment. For example, whether perception of scale changes. On a comprehension category, a similar influence to those described above which may have been conditioned by the modification of knowledge due to designing for a digital domain, may also apply. Also it is worth noting that such influences as interactivity (Lister, *et al.*,

⁵¹ Visual components were selected for the visual experiment by reviewing visual/design elements and principles (identified by Dondis, 1973, p.39; Curtiss, 1987, p.35; Thompson, 1994, pp.165-181), and considering where the digital domain may have affected the visual language when compared to a print domain. This involved mapping the internal and external factors of viewing an image on a computer screen (outlined in Thissen, 2003, p.94) to identify the visual/design elements and principles to consider which visual components effect visual perception when viewing images in a digital domain. Colour and contrast are mainly affected by screen resolution, reproduction of dark and light colour and reflective light, whereas scale is mainly affected by screen resolution, monitor size and ratio. Colour a visual element, "is the dramatic characteristic of a visual that distinguishes it from black or white" (Thompson, 1994, p.171). Visual qualities (hue, saturation and brightness) of colour are directed to sending an emotional message and colour adds realism; how the eye is attracted to the image depends on the use of the three qualities. Contrast, as a visual principle, has been described as "the contrast of light and dark values" (Curtiss, 1987, p.39). Scale, as a visual principle, relates to other visual elements and is involved in orientation, proportion and balance (Curtiss, 1987, p.43). Visual qualities of scale are structuring the other visual elements to enable easy reading of an image and give meaning to a space.

⁵² Originally the knowledge and comprehension levels were to provide a foundation from which to investigate visual literacy skills at the application level in Figure 4.1. This has been explained in Jefferies (2004), where the visual experiment was intended to identify students' visual skills deficits in a digital medium. However, having evaluated the result of this visual experiment, presented in Chapter 4, Figure 1.1 was no longer a viable framework to assist the development of the research.

2003, pp.19-23; Lievrouw and Livingstone, 2006, p.7) and digitality⁵³ (Negroponte, 1996, pp.14-9; Lister, *et al.*, 2003, pp.14-9) may affect the comprehension of visual component(s) in a digital medium.

- Second tactic: The second tactic dictated how to observe designers' visual skills, and involved the employment of an empirical approach to observe visual literacy skills in isolation, independent of context and avoiding cultural influences. This tactic led to employment of scientific methods (determining the variables to test, defining a measurement for each skill assessed and validating the instrument used to gather the statistical data). Hence, a range of images were generated to test each visual literacy skill. They were digitally manipulated in Adobe Photoshop®, in order to provide a graduated range of images to illustrate each visual component or book genre. The same images were used to measure skill use in each domain. Each visual skill in each domain yielded an interval level measurement⁵⁴. The range of images used in the experiment went through a rigorous selection process (*see* Appendix 2.3, p.371). However, knowledge of visual conventions (described below) required participants to select one from a range of images, instead of manipulating a single visual component; forming a nominal level measurement⁵⁵. Isolating visual literacy skills involved making sure other skills were not present when assessing each skill. For the assessment to be independent of context, the imagery used in the experiment material was presented without a background. It was important that the subject of the images was familiar in everyday life (therefore fruit and vegetable imagery were used) and the sample was composed of culturally similar individuals; both of these factors ensured that cultural influences were kept to a minimum.

⁵³ Lister *et al.*, (2003, pp.14-9) have defined digitality in two ways. The first is comparing it to what digital media or digital new medium means using an analogy; considering the key changes in terms of digitisation; detached from the physical forms, data can be compressed into the same spaces, data can be accessed at high speed and it can be manipulated far more easily. They consider the way it is understood in terms of the effect on the producer; if a producer wishes to change an analogue image they have to change the whole image. However, with digital storing, in every pixel, some part of an image can be changed without re-doing the whole image. Therefore, in terms of production, an analogue production process is fixed, whereas the digital process is in a state of flux.

⁵⁴ Interval level measurements rank from low to high in some meaningful way, where the difference between each variable is constant e.g. a person's age (De Vaus, 2002b, pp.204-5).

⁵⁵ "A nominal variable is one where the different categories have no set rank-order" (De Vaus, 2002b, p.205).

1.2 Experiment Material

Bloom's categorisation of knowledge⁵⁶ informed measurement of participants' ability to recall and recognise visual terminology and components – measuring visual knowledge. The visual literacy skills selected from Figure 1.1 to examine visual knowledge were visual discrimination⁵⁷ and visual association⁵⁸. Knowledge of visual vocabulary and definition⁵⁹ were included, but only to give a written account of each visual component assessed in order to contextualise the other selected visual literacy skills. The materials shown in Figure 1.2 A and B examined visual discrimination by asking participants to select a suitable contrast for an image in both digital and print domains. The images used to examine visual discrimination were reused in the examination of visual association, as participants were asked to select a suitable contrast to an image, provided in a digital and print domain (*see* Figure 1.2, C and D). Images used in the experiment, similar to those shown in Figure 1.2, were also used to examine colour and scale to form the visual experiment. The background was removed from each of the images used to assess visual literacy skills in the knowledge level, in order to enable participants to focus on a single visual component.

⁵⁶ Bloom (1956) believes that specific verbs are associated with the assessment of knowledge categories: define, describe, enumerate, identify, label, list, match, name, read, record, reproduce, select and state.

⁵⁷ Visual discrimination is “the ability to perceive differences between two or more visual stimuli” (Avgerinou, 2001, p.xvi).

⁵⁸ Visual association is “the ability to link visual images that display a unifying theme” (Avgerinou, 2001, p.xvi).

⁵⁹ Knowledge of visual vocabulary is “knowledge of the basic components (point, line, shape, form, space, texture, light, colour and motion) of visual language” (Avgerinou, 2001, p.xv).

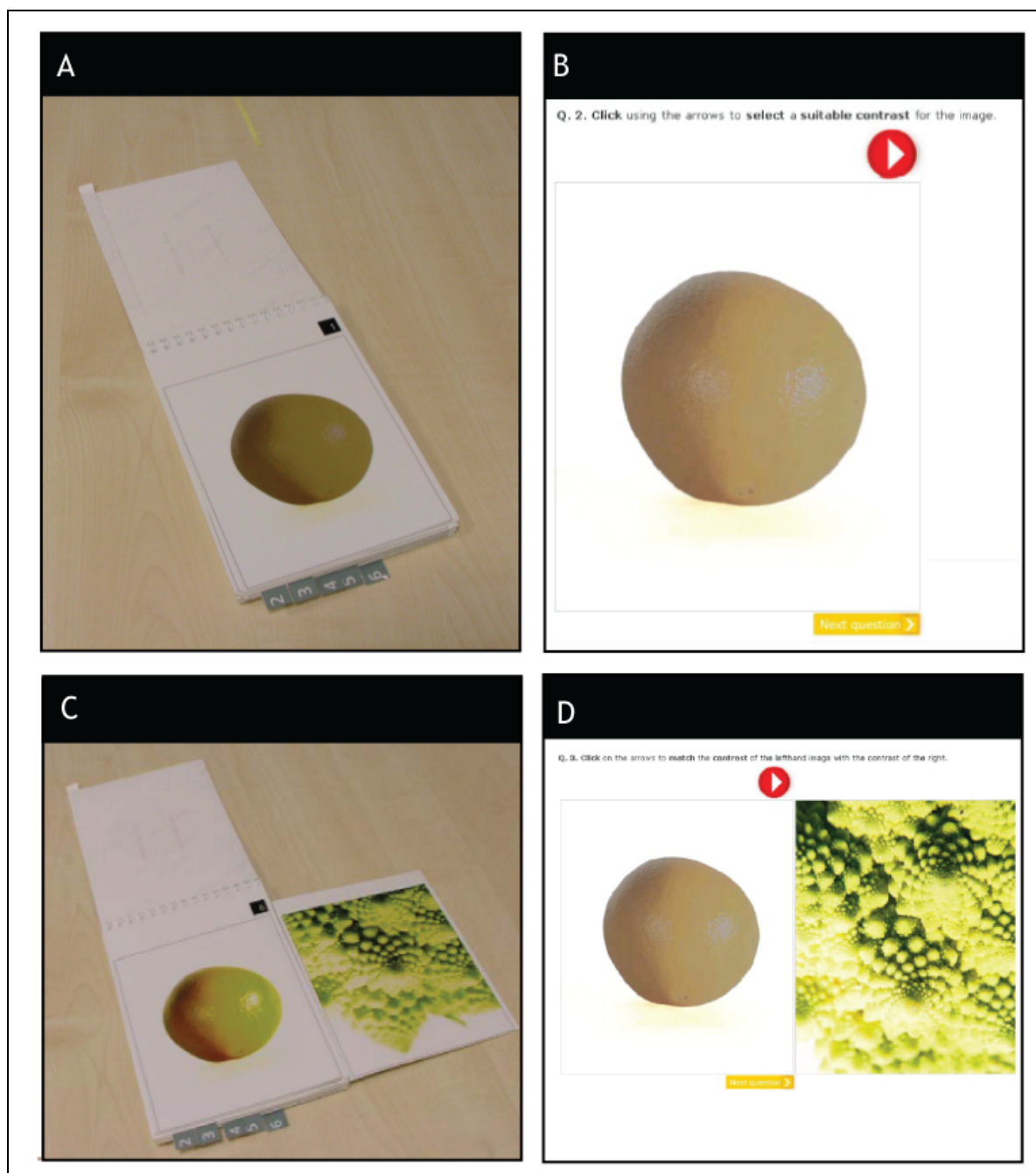


Figure 1.2: Visual knowledge experiment material (A) Visual discrimination skill: contrast print material. (B) Visual discrimination skill: contrast digital material. (C) Visual association skill: contrast print material. (D) Visual association skill: contrast digital material.

Drawing from Bloom's categorisation of comprehension⁶⁰, participants at this point in the experiment were asked to demonstrate an understanding of visual meaning, requiring both decoding and encoding of visual literacy skills – measuring visual comprehension. Comprehension

⁶⁰Bloom (1956) believes that specific verbs are associated with the assessment of comprehension category: classify, discuss, estimate, explain, generalise, gives example, make sense out of, restate (in own words), summarise and understand.

skills selected from Figure 1.1 were constructing meaning⁶¹ and knowledge of visual conventions. In this context, comprehension differs from knowledge, in that it examines participants' understanding of visual meaning in a specific context, rather than reviewing small perceptual differences. For example, a golden ribbon in the physical world may have a high qualitative value, but on screen a computer generated golden ribbon may appear tacky and of low quality. There could be many reasons for this change in meaning; however, at this initial stage of the research, although the experiment might have discovered such anomalies there was no intention to determine explanations for them.

The constructing meaning⁶² exercise asked participants to demonstrate this skill using three book genres: mystery, comedy and romance. One visual component in a book cover was changed to suit each genre, i.e. mystery-contrast, comedy-scale, and romance-colour⁶³ (see Figure 1.3, A and B for examples of digital and print mystery experiment material).

The knowledge of visual conventions⁶⁴ exercise asked participants to select from a range of book covers⁶⁵ which was least appropriate for each of the three genres: mystery, comedy and romance (see Figure 1.3, C and D for examples of digital and print experiment material). This was because the critical criteria for least appropriate were considered less likely to invoke subjectivity in responses than the selection of a most appropriate image.

⁶¹ Constructing meaning is "the ability to construct meaning for a given visual message on the evidence of any given visual (and perhaps verbal) information" (Avgerinou, 2001, p.xvii).

⁶² A number of issues arose with the set of images used to test constructing meaning during the pilot study: (a) Participants were matching the background of the romance and mystery images; (b) One of the researchers felt that the title (Fiona Apple) of the book could be leading to a particular response; (c) In the mystery questions it was observed that participants required a higher range and this was backed up by the data. The images in the constructing meaning test were changed to address these issues.

⁶³ The allocation of the visual components to the genre was discussed and agreed by the supervisory team. Additionally, it was agreed to use the same book cover, style and title for each genre.

⁶⁴ Knowledge of visual conventions is "knowledge of visual signs and symbols, and their socially agreed meaning (within the western culture)" (Avgerinou, 2001, p.xv).

⁶⁵ It was agreed by the supervisory team that the book covers examining knowledge of visual conventions would have the same title, author and typeface, but the images would be changed (see Appendix 1.3).

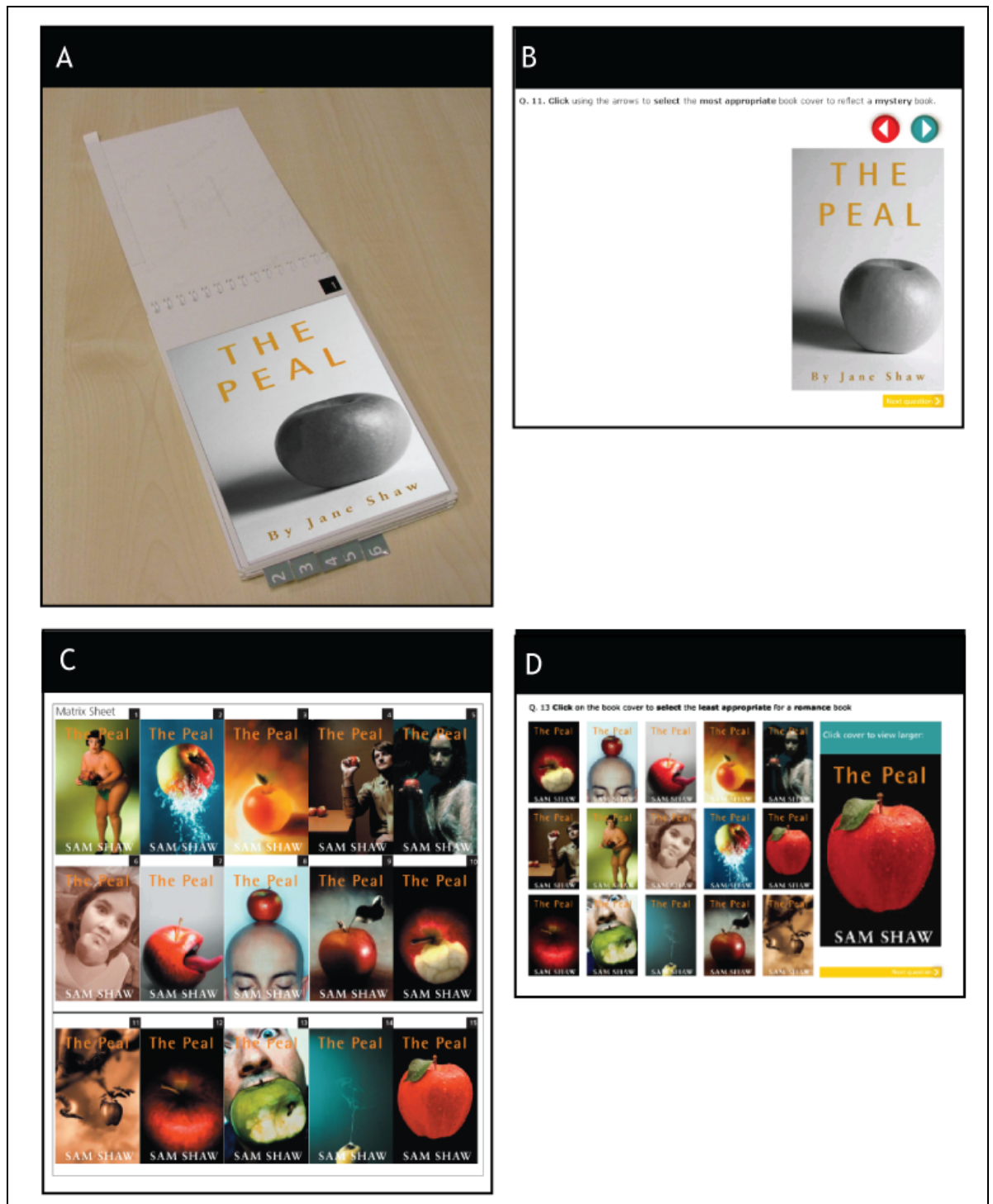


Figure 1.3: Visual comprehension experiment material. (A) Constructing meaning skill: mystery print material. (B) Constructing meaning skill: mystery digital material. (C) Knowledge of visual conventions skill: print material – Matrix Sheet. (D) Knowledge of visual conventions skill: digital material

The full set of imagery used in the visual experiment is located in the next section.

1.3 Image Selection Process

Image selection process observed to construct a measurement to examine visual discrimination and visual association skills

Different types of fruits and vegetable (apple, orange, pear, lemon, melon, kiwi and cauliflower) were selected as subject matter of the imagery, to construct a measurement of visual discrimination and visual association. Such subject matter would be familiar to the participants, allowing the primary focus to be on the visual component and skill being examined, rather than using an unfamiliar image that might distract attention from the task at hand. A photographer assisted in the production of fruit images to a brief of colour vibrancy, contrast or scale. The following seven stages led to generation of images to construct a measurement of visual discrimination and visual association:

Stage 1: Deciding on how to light each visual component in different types of fruit and vegetable. A discussion was held with the photographer to determine the type of lighting required to obtain each visual component selected for the visual experiment. Discussions on exposure and lens type led to the fruit and vegetable selection being lit in the following ways for each visual component:

- Contrast required light that was close up to shine on the selected fruits from a single direction (*see* Figure 1.4).
- Colour vibrancy required two lights to be shone on the selected fruits (*see* Figure 1.5).
- Scale required an absence of shadow, so the object looked flat, in order to focus on the scale. Therefore the light was directed to a reflector board and bounced back onto the fruit and vegetable (*see* Figure 1.6).



Figure 1.4: An example of how contrast was lit by directing light close up to a pear from a single direction

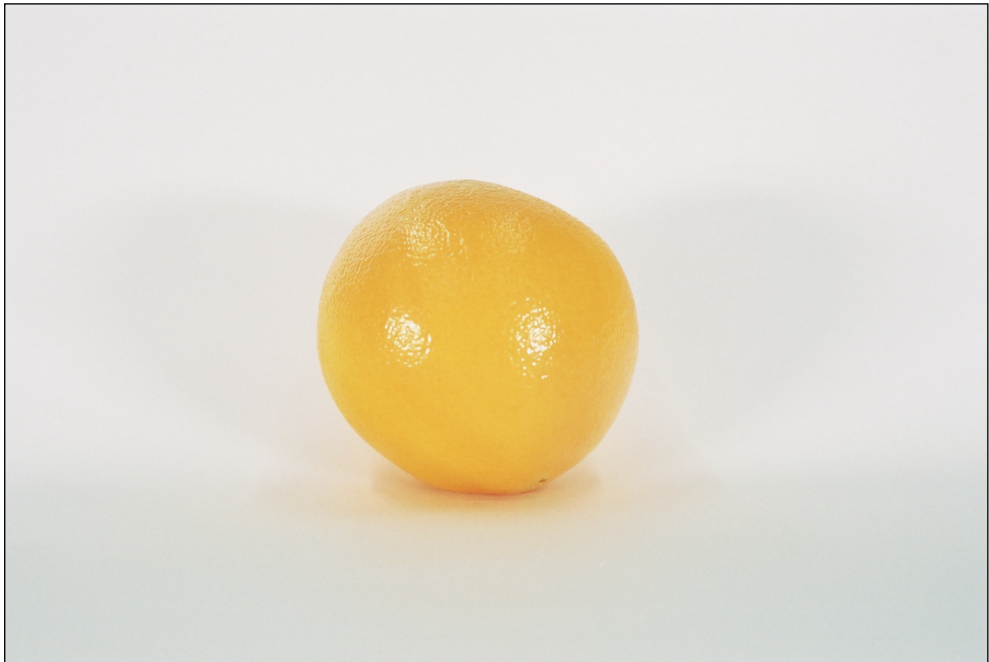


Figure 1.5: An example of how lighting was created to produce a vibrant colour on an orange



Figure 1.6: An example of how scale was lit by pointing light onto a reflector board and bouncing it back onto the melon

Stage 2: Taking the photographs

Each fruit and vegetable was photographed in each of the previous three lighting conditions to achieve the intention for each visual component, using both digital and analogue cameras. For each image the lighting, aperture, exposure and the type of visual component intended were recorded during this stage as shown in Table 1.1.

Table 1.1 An example of recording the lighting, aperture, exposure and the type of visual component for each image, with additional comments made by the photographer and the researcher

ID	Subject	Visual component	Lighting	Aperture	Exposure	Intent	Photographer's/ Researcher's comments
1	apple	colour vibrancy	flash on white ceiling	5.6	200	high vibrancy	size – out of focus
2	apple	colour vibrancy	flash towards the objects	2.3	200	high vibrancy	size
3	orange	colour vibrancy	flash on the ceiling and polarising filter	6.3	60	high vibrancy	size
4	orange	colour vibrancy	flash on the ceiling no lights and polarising filter	4.5	1/60	high vibrancy	change background to black
5	apple	colour vibrancy	flash towards the objects	2.3	200	high vibrancy	change background to black
6	apple	contrast	flash towards the objects	5.6	13	high contrast	too much black in the picture
7	apple	contrast	flash towards the objects	5.6	10	high contrast	too orange
8	apple	contrast	flash towards the objects	5.6	25	high contrast	too orange
9	apple	contrast	flash towards the objects	5.6	25	high contrast	too orange
10	apple	contrast	exposed flash 2/3 medium contrast/low	5.6	50	high contrast	too orange

Stage 3: Image development and quality control

The analogue pictures were developed, and the digital images transferred to the computer. The images at this point were reviewed for quality with the photographer (*see* Table 1.2).

Stage 4: Determining the type of fruit and vegetable employed to assess visual discrimination and visual association

The fruit and vegetable imagery selected in stage 3 was reviewed using a scale of 1-5 (*see* Table 1.2), to reconsider which type of image best represented each visual component (colour vibrancy, contrast or scale). This enabled the researcher to select the type of fruit used to assess visual discrimination. At first, the focus was on selecting a type of fruit or vegetable to examine visual discrimination as the same range of images would be used for examining visual association.

Table 1.2: Review the types of fruit and vegetable using a scale of 1-5, (1=very poor, 2=poor, 3=ok, 4=good, 5=excellent) to reconsider which fruit and vegetable is most appropriate to assess each visual component

Subject	Visual components use to assess participants' visual discrimination skills		
	Colour vibrancy	Contrast	Size
Apple	5	5	4
Orange	5	5	4
Pear	2	5	2
Kiwi	1	2	5
Lemon	2	3	4
Melon	2	3	5
Cauliflower	0	0	0

Based on Table 1.2 an orange and an apple both produced visual qualities of colour vibrancy, contrast or scale. The orange was selected for visual discrimination, as there were more quality images for the review panel. Therefore the following types of fruit images were selected for the review panel to assess visual discrimination:

- Intermediate level of contrast of an orange
- Intermediate level of scale of an orange
- Intermediate level of colour of an orange

Based on Table 1.2 the following fruit images were put forward for the review panel, to assess visual association:

- The highest contrasting: orange with pear
- A flat image (scale): orange with melon and pear
- High colour: orange with apple

It is noted that the intermediate and high levels for each visual component were previously determined in stage 3 by the photographer.

Stage 5: Review Panel

The review panel to select the final images for the pilot visual experiments was made up of eight photography experts, from the Northumbria Photography Course and the Northumbria Design School. Each of the images was presented separately to them on the same screen and print out size. The results from the review panel were as follows:

- For contrast, 7 of the 8 panellists approved images to assess both visual association and visual discrimination.
- For scale, the panellists thought that a melon image would provide an image to associate with visual discrimination.
- Colour vibrancy was the most difficult image to select, as there was less agreement; therefore two more panellists were recruited to aid the selection.

Stage 6: Generating images to constructed measurement

Each selected image was taken into Adobe Photoshop® in order to produce a range of one hundred images; from which twenty were selected at even intervals. Contrast used the contrast tool, colour vibrancy used the saturation tool and scale relied on Macromedia Flash® to scale the orange image. The on screen images were put into Macromedia Flash® and printed out for the off-screen packs. In order to exclude the requirement for use of visual memory, on-screen images were presented side by side to enable immediate comparison. Paper version images were presented in the same size but were mixed up; this enabled the researcher to obtain the participants' implicit responses.

Stage 7: Change to visual experiment images made after pilot study

The pilot study results on the images used to assess visual discrimination and visual association led to the image range being redefined:

- Visual discrimination: Through combining all of the on and off-screen ranges in the pilot study, contrast displayed a range of 2-10 and colour 4-10. This data was used to redefine both contrast and colour ranges to display tighter parameters over a range of 10 images. Redefining the ranges enabled greater confidence in identifying small perceptual differences as well as giving examples of visual skills development, through comparing professional designers, design students and non-designers.
- Visual association: The measurement of visual association utilises the visual discrimination range, but ultimately participants' selection was based on the associated image. The associated images for the pilot study had a high level of colour vibrancy and contrast. In the pilot study participants found the task of matching colour vibrancy and contrast easy and there was hardly any variation in the range. Therefore the associated images were replaced in the visual experiment with a natural or medium level of colour vibrancy and contrast, to improve the selection process.

These images were then reviewed by the same panel of experts used in Stage 5, to achieve a consensus on the intermediate contrast and colour vibrancy of the fruit and vegetable images. As a result, the spectrum of images presented in Tables 1.3 and 1.4 were used to examine participants' visual discrimination skills in a print and digital domain.

Table 1.3: Showing the images used to examine participants' visual discrimination skills in a print and digital domain































Spectrums of images used to assess participants Visual Discrimination Skills										
	1	2	3	4	5	6	7	8	9	10
Contrast										
Scale										
Colour										

Table 1.4: Showing the images used to examine participants' visual association skills in a print and digital domain











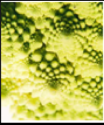






















Spectrums of images used to assess participants' Visual Association Skills										
	1	2	3	4	5	6	7	8	9	10
Contrast										
Associated										
Scale										
Associated										
Colour										
Associated										

Image selection process observed to construct a measurement to examine visual constructing meaning skill

Avgerinou (2001) defines constructing meaning as, “the ability to construct meaning for the given visual message on the evidence of any given visual and/or verbal information” (p.xvii). Based on this definition, a different approach was taken to generate images from those of visual discrimination and association skills; the focus was not on small perceptual differences, rather on reviewing how a visual message was constructed. Hence when generating the images to examine this skill, more focus was placed upon determining the assessment context, as that would be the major criterion for how the skills were applied. This led to the following four stage process being observed to generate images to construct a measurement of constructing meaning:

Stage 1: Context, content and visual components

The context for examining constructing meaning needed to be familiar to the participants in all populations (professional designers, design students and non-designers). Therefore, the primary context of a book cover was chosen with the secondary sub-context of genres of books of mystery, comedy and romance. Again these genres were selected so that they would be familiar to all

participants. The content of books (title, layout out of title and author) stayed the same for all sub-contexts, to better enable comparison of results and focus participants' application of constructing meaning in a book context.

The three visual components (contrast, colour vibrancy and scale) coupled with the sub-context (mystery, romance and comedy) were chosen to assess participants' constructing meaning skills. Using the same visual components as visual discrimination and association skills meant that a comparison could be made when they were applied in a context. Mystery was coupled with contrast, colour vibrancy with romance, and comedy with scale. Such visual components, were associated with each book genre, as they were seen as the most prominent visual components from a review of mystery, romance and comedy on the Amazon top 10 best sellers.

Stage 2: Images selection

Apples were selected as the subject matter for all sub-contexts as it was believed to be more visually dynamic and possess more perceptual differences compared to the orange. Selection of the images for each sub-context was made from those taken from the visual discrimination and association skills by reviewing them with the supervisory team. This led to the selection presented in Figures 1.7, 1.8 and 1.9 for the sub-context.



Figure 1.7: This apple was selected to assess participants' constructing meaning skill as it showed an appropriate level of contrast for a mystery book cover



Figure 1.8: This apple was selected to assess participants' constructing meaning skill as it showed an appropriate level of colour vibrancy for a romance book cover



Figure 1.9: This apple was selected to assess participants' constructing meaning skill as it showed a flat image that best represented scale for a comedy book cover.

Stage 3: Image generation

The backgrounds of the images were removed to allow participants to focus on the object. When generating the book cover, a number of developments occurred, as shown in Figures 1.10 and 1.11 when using the example of comedy.

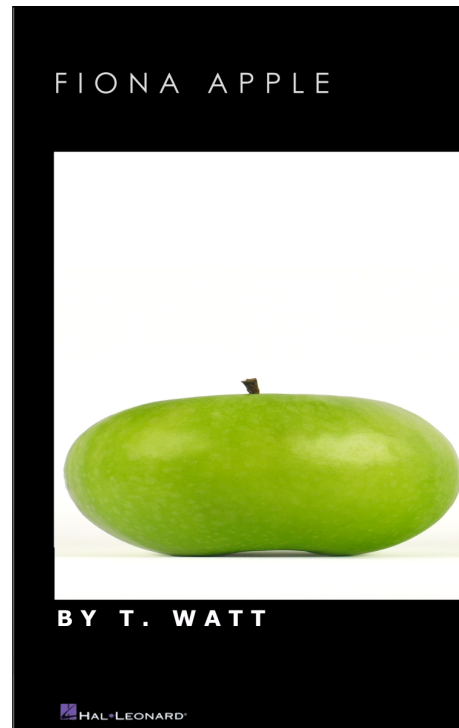


Figure 1.10: First version of the layout for the book cover

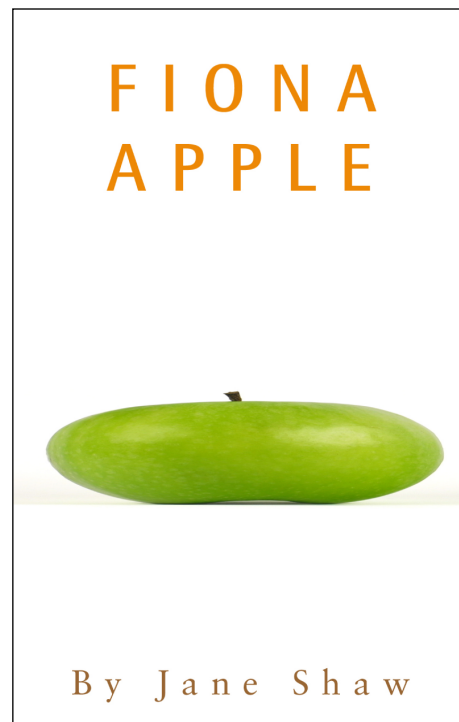


Figure 1.11: Second version of the layout for the book cover

When the book covers were finished, a range of images was selected using the same method as in Stage 6 for generating images for visual discrimination and association skills.

Stage 4: Change to image selection made after pilot study

The final range to assess constructing meaning came from reviewing the pilot data. Through combining results from both samples (design experts and students) in digital and print-based domains, a broad range was yielded in three sub-contexts; romance a range of 1-9, mystery 1-10 and comedy 1-10. This data led to redefining all three contexts, presenting broader parameters over 10 images, enabling greater confidence in identifying differences in visual development when comparing sample groups. It should be noted that the title was changed from Fiona Apple to The Peal, which was a play on words; this was intended to remove any associative connections should the participants know someone called Fiona. This led to the final spectrum of images presented in Table 1.5.

Table 1.5: Showing the images used to assess participants' constructing meaning skills in a print and digital domain































Spectrum of images used to assess participants' Constructing Meaning Skills										
	1	2	3	4	5	6	7	8	9	10
Mystery Contrast										
Comedy Scale										
Romance Colour										

Image selection process observed to construct a measurement to examine knowledge of visual conventions skill

Avgerinou (2001) defined knowledge of visual conventions as, “knowledge of visual signs and symbols, and their socially agreed meaning (within the western culture)” (p.xv). Based on this definition a different approach was taken to generate images from those of visual discrimination and association skills: as the focus was not on small perceptual differences, rather on reviewing how visual conventions are constructed in a visual message. Hence when generating the images to examine this skill, more focus was put on determining the assessment context and cultural conventions, as they would be the major factors in how the skills are applied in context. This led to the following three stage process being observed to generate images to construct a measurement of knowledge of visual conventions:

Stage 1: Context and content

To avoid overlap, when assessing knowledge of visual conventions, participants were asked to view entire visual images on a book cover as the primary context. Then they were asked to select the least appropriate book cover for genres mystery, comedy and romance. Again, these genres were selected, as they would be familiar to all participants. In extracting the inappropriate response, the extreme ends of the continuum were selected to demonstrate participant understanding of a visual convention. The content of books such as title, layout out of title and author, all remained the same, in order to compare results and focus participants’ application of knowledge of visual conventions, in a book context.

Stage 2: Images selection and generation

Oranges was the subject used initially for the book cover and the design was influenced through reviewing the existing mystery, romance and comedy selection found on the Amazon top 10 best sellers. The images taken from the visual discrimination and association skills in Figures 1.12, 1.13 and 1.14 were used to create the initial book covers. These images were then used to form a discussion between the researcher and the supervisory team. The results showed that the book covers produced were insufficient, as they did not convey the cultural conventions of the genre used and failed visually to convey the content of the book. This therefore indicated that visual conventions were not being assessed and that the focus was still on the smaller perceptual differences.

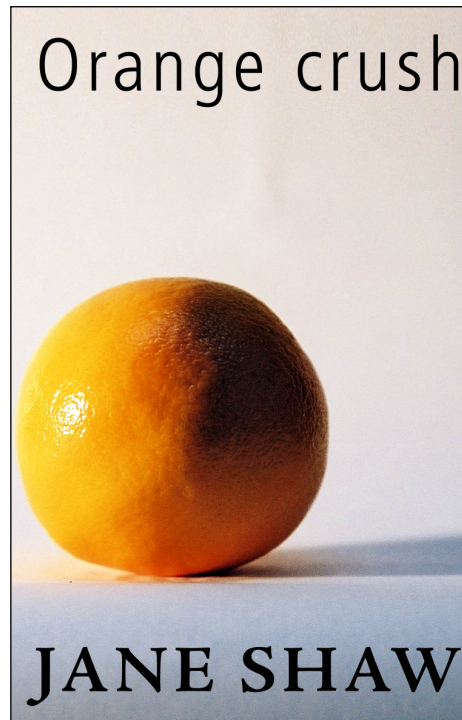


Figure 1.12: Preliminary book cover conveying mystery



Figure 1.13: Preliminary book cover conveying comedy

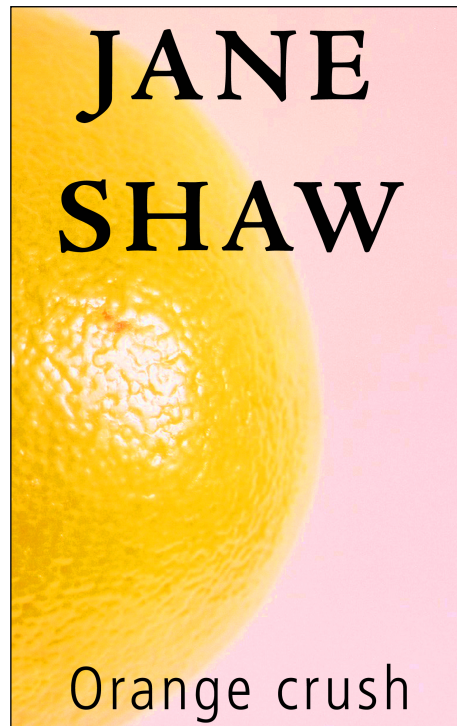


Figure 1.14: Preliminary book cover conveying romance

It was decided that apples would be more appropriate than oranges as it was believed that they had more cultural connotations, for example the poison apple in the Snow White. Therefore a decision was made to find different types of images of apples from an image bank (<http://www.non-stock.com>, 2004) and create twenty book covers based on these images, presented in Figure 1.15, at the same time changing the book cover title, a pun on the word Peal, and making the author's name applicable to either sex. Then a pilot was conducted to find the most appropriate image for each of the book genres (mystery, romance and comedy). This informed the final visual experiment and ensured that a mix of book covers would be used to convey the different visual conventions involved in mystery, comedy and romance genres. Therefore it was possible to use the pilot test to define the range to be used to examine participants' selections in both a print and digital domain.

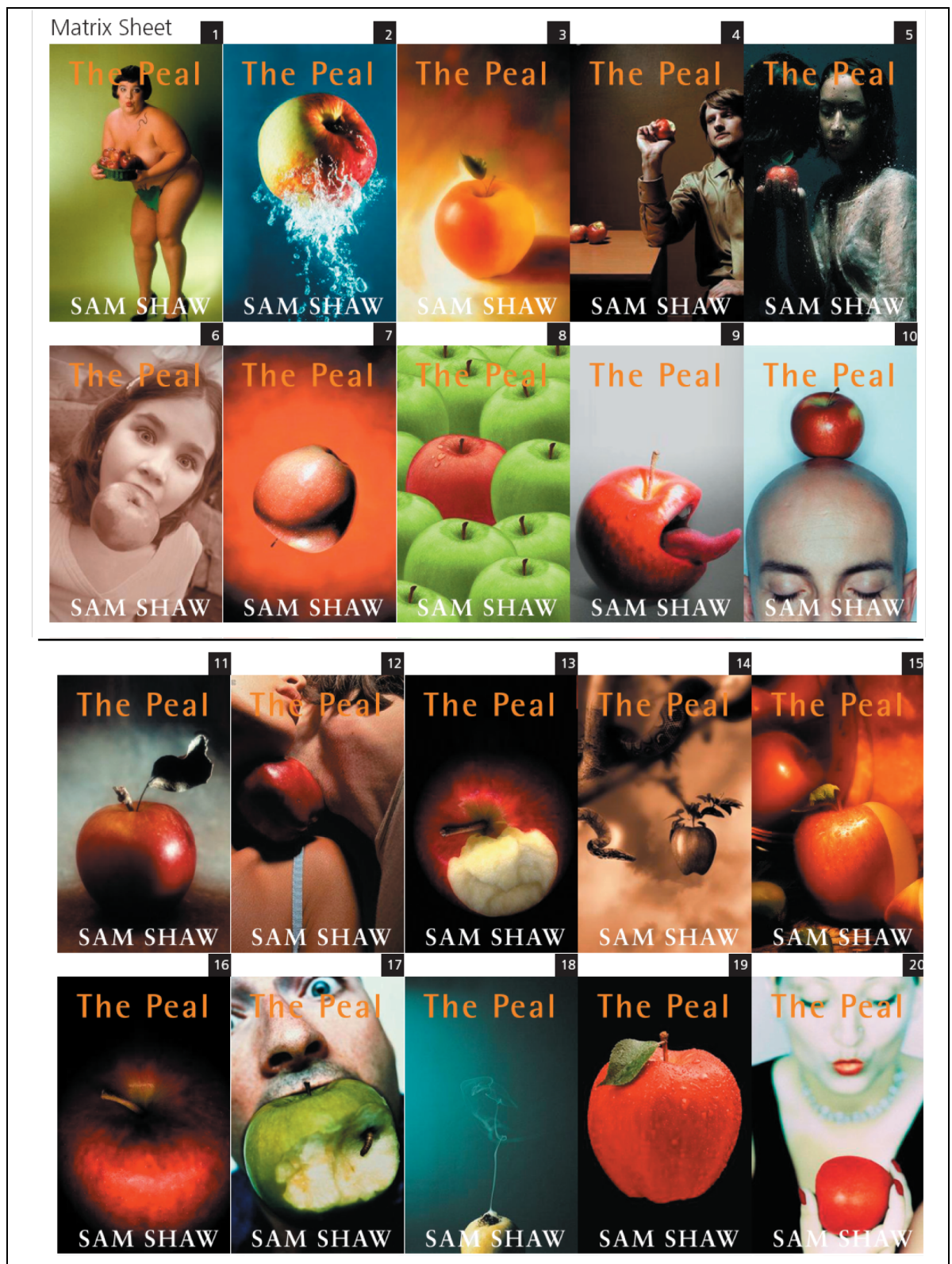


Figure 1.15: The visual experiment's matrix sheet: Print based images used in pilot study to assess participants' knowledge of visual conventions

Stage 3: Change to image selection made after pilot study

The data yielded from the pilot showed there were too many romance and comedy book covers, in comparison to mystery. Therefore two book covers from each genre were removed to give the final images on the matrix sheet in Figure 1.16.



Figure 1.16: The visual experiment's matrix sheet: Print based images used to assess participants' knowledge of visual conventions

1.4 Data Collection and Sampling

From reviewing studies that compared designers' visual thinking and reasoning skills while sketching in a digital and print domain (Hanna and Barber, 2001; Jonson, 2005; Won, 2001) the data collection procedure was informed by the Won (2001) approach, when comparing visual thinking using computer and conventional media in the concept generation stages of design. Won (2001) observed and compared third year design students' behaviours whilst in digital and print domains. This experiment had three parts: Part A asked participants to generate concepts for a shelf with conventional media, such as pens, rulers and paper, within one hour. Then a separate group of participants carried out the same task as Part A for Part B, using a computer. Part C compared and analysed the results from Part A and B. The subjects were video recorded, but the major data source was the visual input, supported by verbal data in the form of the questions that subjects were asked after the experiment.

This A and B approach was used to inform the visual experiment⁶⁶ which took 30 minutes with 27 questions and was designed to be delivered by the researcher, to a person or group. The researcher handed out consent forms prior to the experiment, and verbally informed participants that there were no right or wrong answers. In addition, participants were asked that all computer monitors should be adjusted to a specified PC or Macintosh brightness setting to ensure continuity. The visual experiment had two parts: Part 1 examined knowledge and comprehension levels in a print domain and Part 2 examined knowledge and comprehension levels in a digital domain.

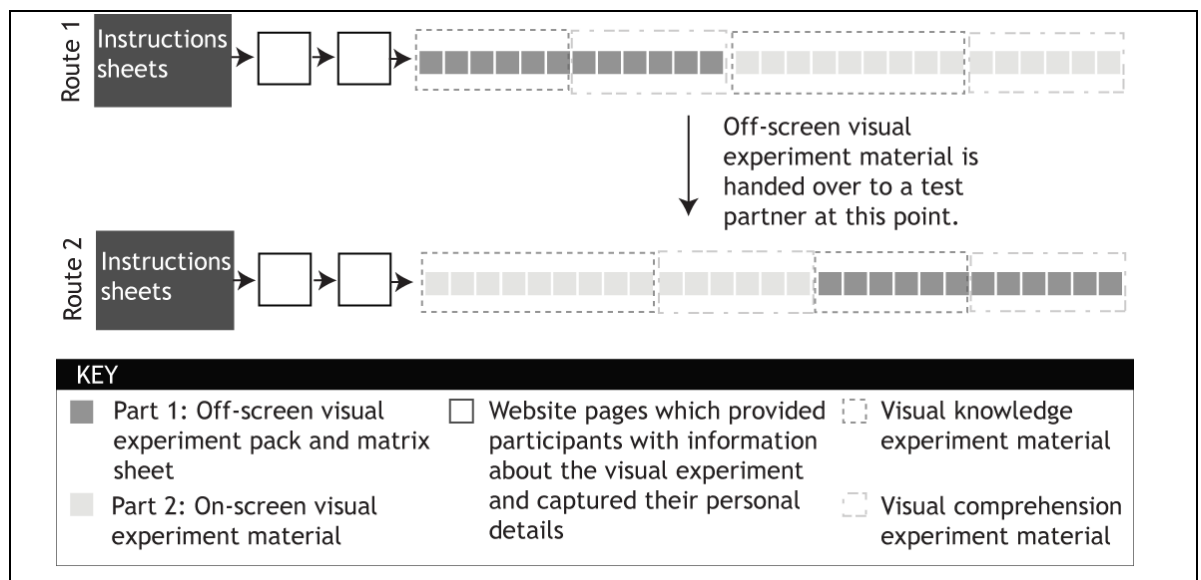


Figure 1.17: The visual experiment procedure

⁶⁶ The development of navigation in terms of instruction, visual guidance and signposts was improved following the pilot study, in order to reduce any possible confusion for participants.

In order to deliver the experiment to a person or group, it had two routes, as shown in Figure 1.17. In a large group, participants were placed in twos for the experiment; this is referred to in Figure 1.17 as test partner⁶⁷. As the visual reference material was only required for a proportion of the visual experiment, one of the pair was handed the ‘off-screen visual experiment pack and matrix sheet’ and asked to complete route 1. The other would complete route 2 on screen, when they had both finished, the person who had followed route 1 passed their matrix sheet to the person who had followed route 2 and moved on to the computer element. In this way each participant completed both parts of the experiment. The visual experiment – Route 1 is visually displayed in Figures 1.18-1.22.

⁶⁷ The main reason for working in twos was that there would be less test material required.

VISUAL EXPERIMENT ROUTE 1: Set Up and Personal Details

The researcher handed out consent forms prior to the experiment, and verbally informed participants there were no right or wrong answers. In addition participants were asked that all computer monitors should be adjusted to a specified PC or Macintosh brightness setting to ensure continuity.

The experiment had two different starting points, route 1 being off screen (print based) and route 2 being screen based (digitally based). This could be delivered to both individuals or group. In a large group participants were partnered for the experiment, referred to as 'test partner'. As the visual reference material was only required for a proportion of the visual experiment, one of the pair was handed the 'off-screen visual experiment pack and matrix sheet' and asked to complete route 1.

Participants that have taken route 1 entered the following website address into their browser: www.visualresearch.co.uk/offscreen.html

Next participants enter their personal details (name, email, colour blind, educational background, computer use for the experiment Macintosh or PC, main occupation and location) then press submit.

Participants then read the off-screen instructions on visualresearch.co.uk about the first part of the visual experiment, which explained long it could take, how many questions, there was no time limit, and how to work with the visual experiment material provided.

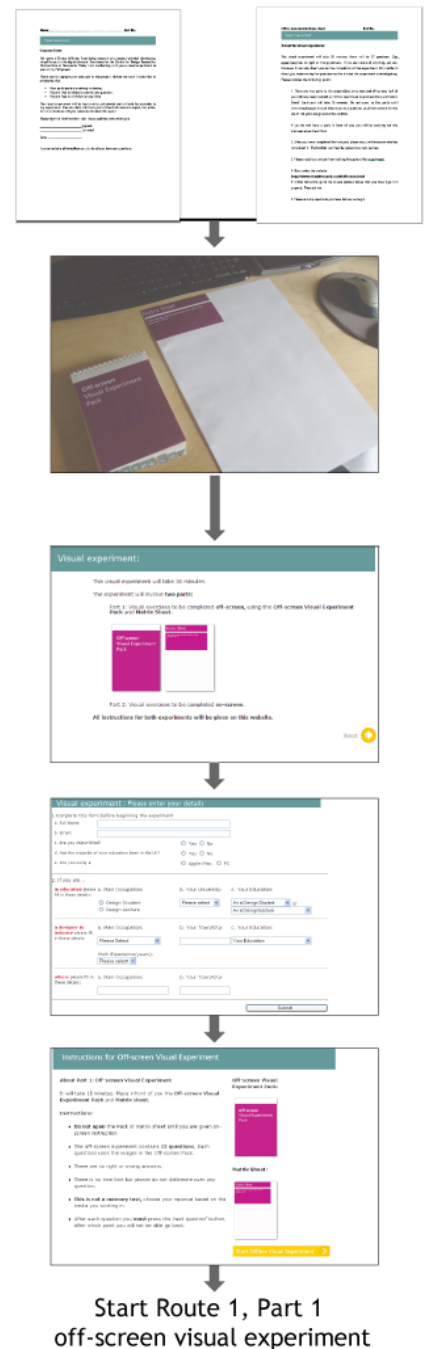


Figure 1.18: What participants would see when going through route 1 of the visual experiment, setting up the experiment and entering personal details (page 1 of 5)

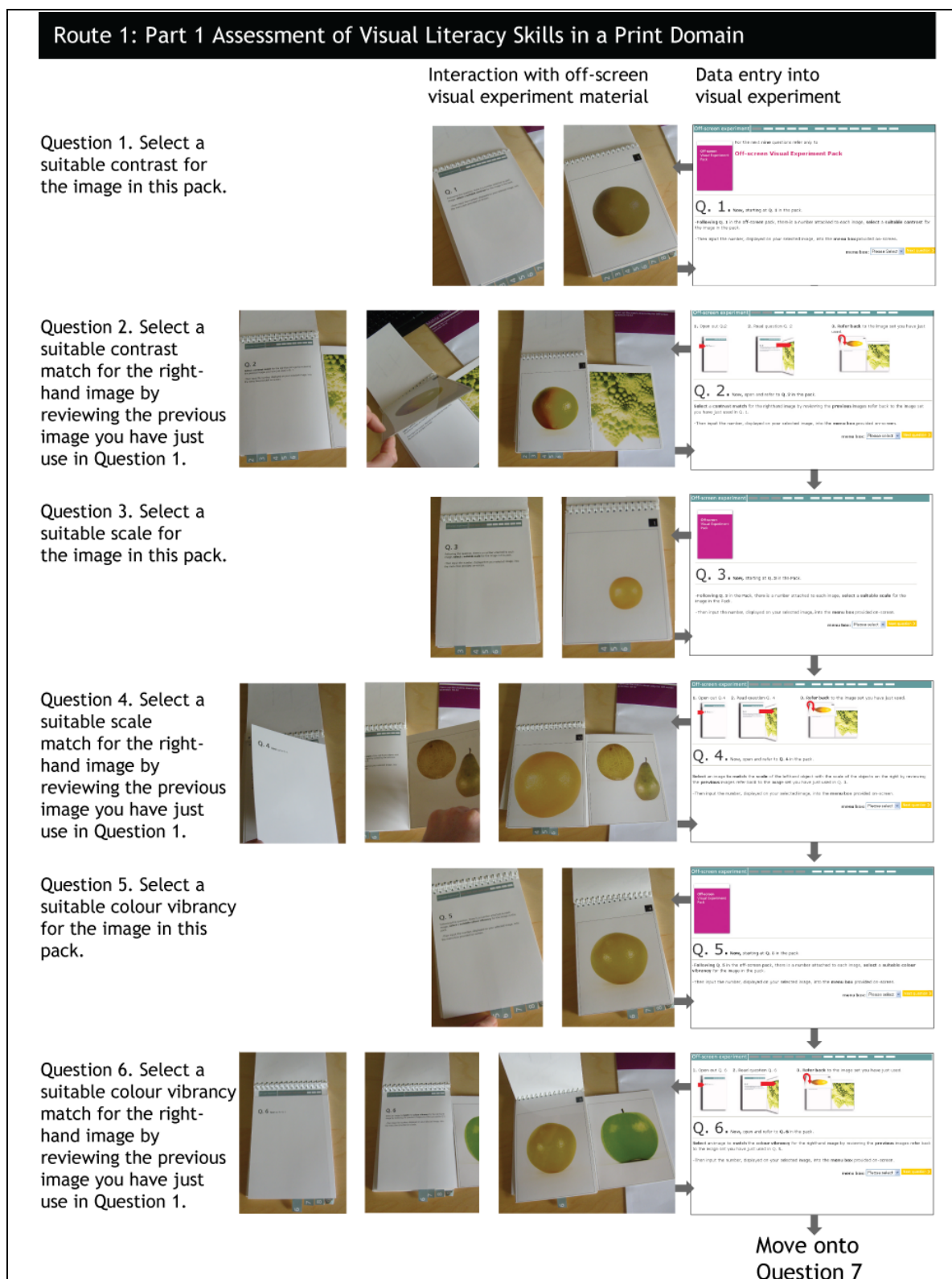


Figure 1.19: What participants would see when going through route 1 of the visual experiment, answering the print-based question (page 2 of 5)

Route 1: Part 1 Assessment of Visual Literacy Skills in a Print Domain

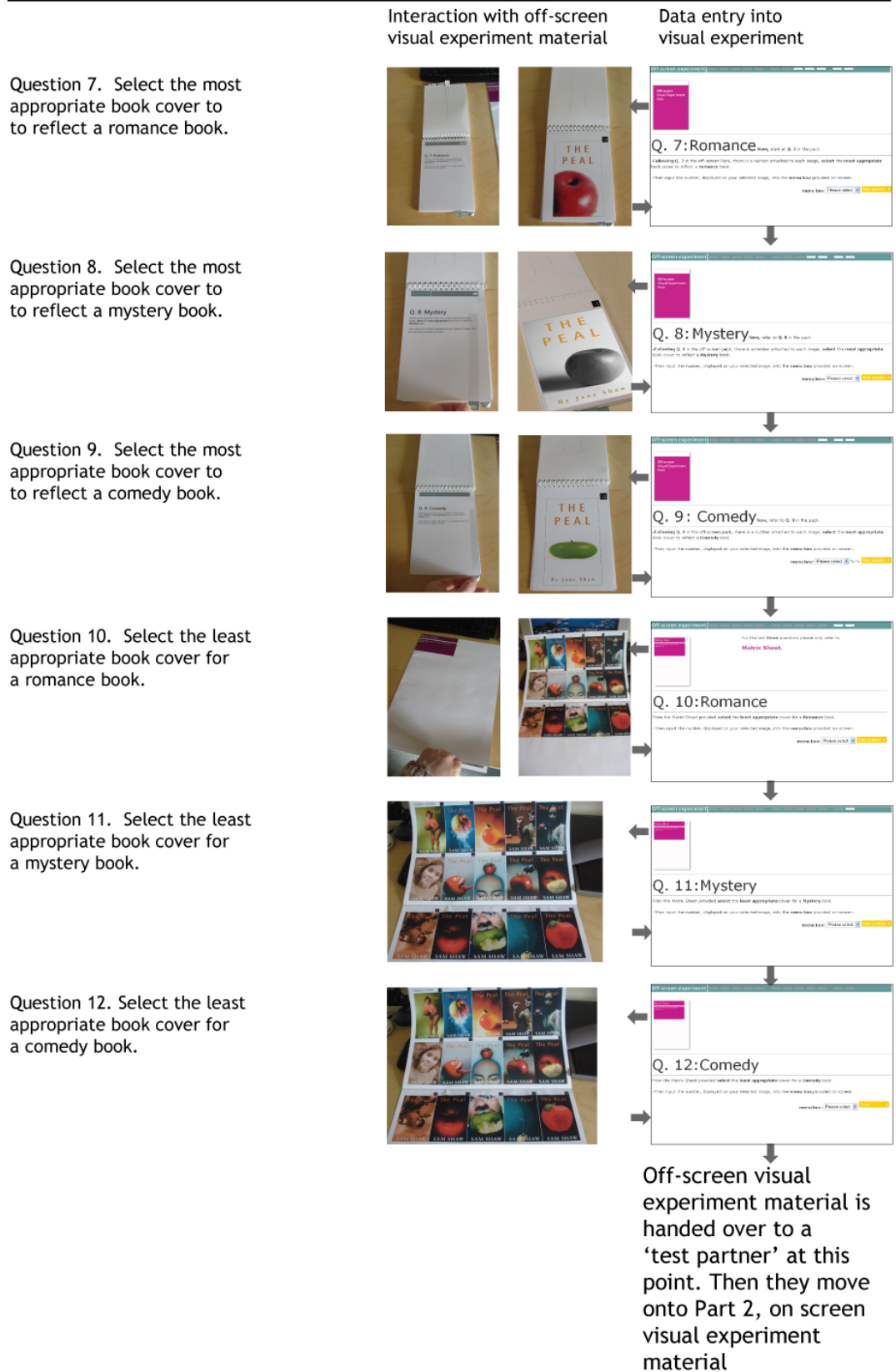
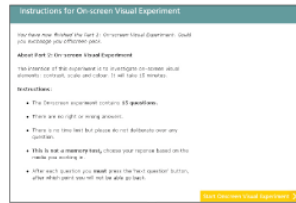


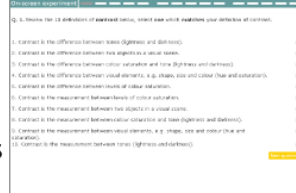
Figure 1.20: What participants would see when going through route 1 of the visual experiment, answering the print-based question (page 3 of 5)

Route 1: Part 2 Assessment of Visual Literacy Skills in a Digital Domain

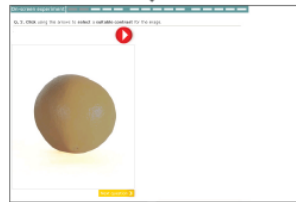
Instructions
for the on-screen
visual
experiment



Question 1.
Review the
Definitions of
contrast, select
one which matches
your definition.



Question 2.
Select a suitable
contrast for the
image.



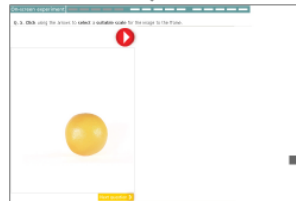
Question 3.
Match the contrast
of the left-hand
image with the
contrast of the
right.



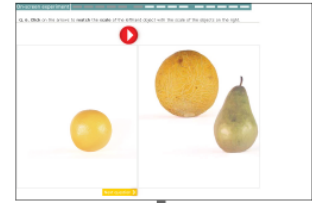
Question 4. Review
the definitions of
scale, select one
which matches
your definition.



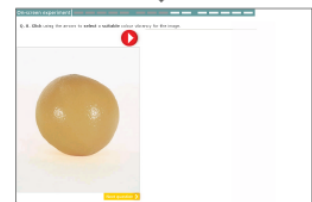
Question 5.
Select a suitable
scale for the
image.



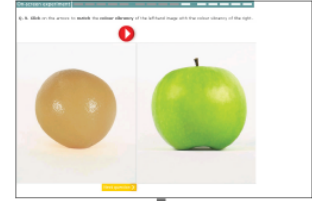
Question 6.
Match the scale
of the left-hand
scale with the
contrast of the
right.



Question 7.
Review the
definitions of
colour vibrancy,
select one which
matches your
definition.
Question 8.
Select a suitable
colour vibrancy
for the image.



Question 9.
Match the colour
vibrancy of the
left-hand image
with the colour
vibrancy of the
right.



Question 10.
Select the
most appropriate
book cover to
reflect a
romance book.



Question 11.
Select the
most appropriate
book cover to
reflect a mystery
book.



Question 12.

Figure 1.21: What participants would see when going through route 1 of the visual experiment, answering the digital-based question (page 4 of 5)

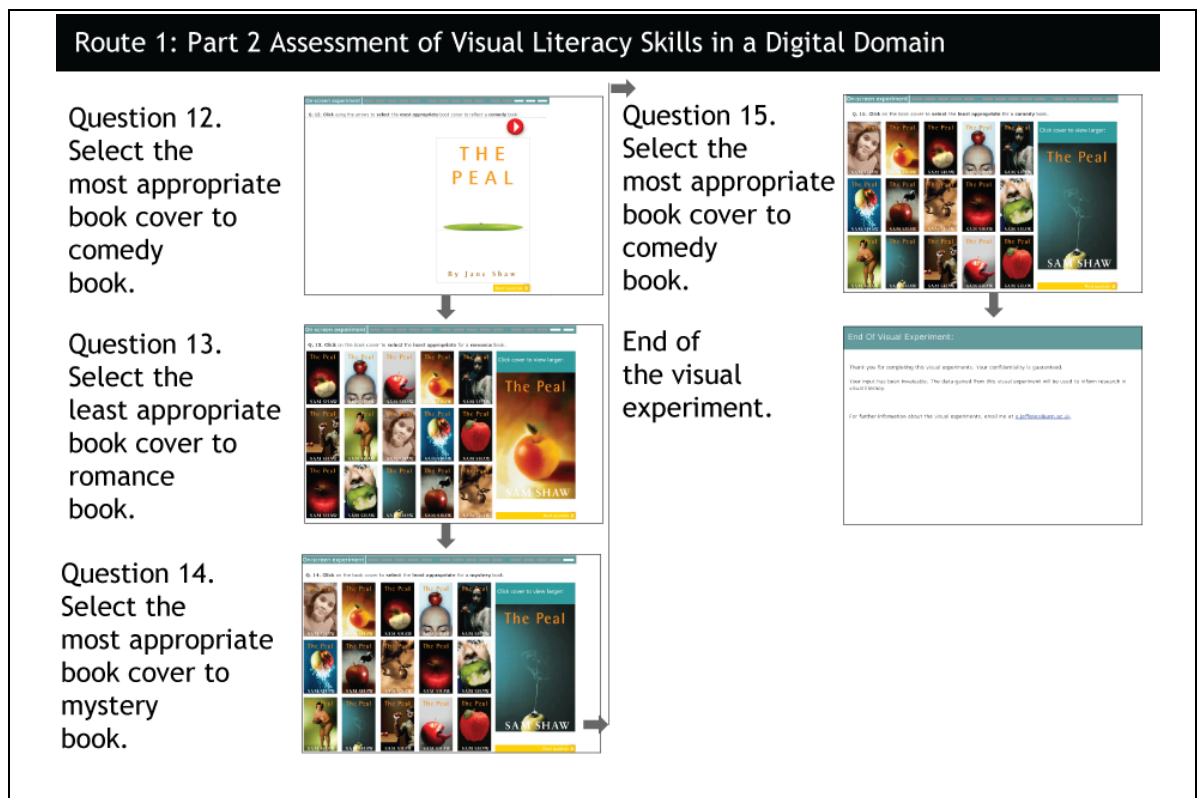


Figure 1.22: What participants would see when going through route 1 of the visual experiment, answering the digital-based question (page 5 of 5)

The participants were gathered using a stratified sampling⁶⁸ technique where the respondent group was made up of three populations: professional designers (digitally and print-based designers), digital-based design students and non-designers. The combination of these populations was sampled to inform design students' visual literacy skills' use in different domains.

- Population one: Professional designers were drawn evenly from two groups: those with non-digitally derived knowledge⁶⁹ and those with only a digital-based knowledge working mainly in print, multi-media or multi-disciplinary design companies. The digital-based designers were required to have three years of industry experience to ensure that they were competent in the domain. Some of the professional designers were personal acquaintances and others were gathered by recommendation from other designers or researchers.
- Population two: Digital-based design students from first year digital degree courses in design departments in U.K. universities were invited to take part. In this population

⁶⁸ Stratified sampling "involves dividing the population into a number of groups or strata, where members of a group share a particular characteristic(s)" (Robson, 2002, p.262). To organise a stratified random sample involves identifying the characteristics of the wider population that must be represented in the sample, (for example, males and females); this allows random sampling within these groups to occur (Cohen, *et al.*, 2000, p.101).

⁶⁹ For the purpose of the visual experiment non-digitally derived knowledge involves the use of physical design tools and environment, e.g. typesetting, developed before the computer was introduced, learnt through a HND/degree, postgraduate qualification in graphic design or through apprenticeship learnt as a trade.

students were required to have received the majority of their education in Britain. De Montfort University; University of Leeds; Northumbria University and Ravensbourne College of Design and Communication took part in the experiment. Institutions were invited to participate in the visual experiment based on the following criteria: (a) the number of students per course, as it was decided that travel to remote institutions could be justified only for ten or more subjects; (b) the institution must offer undergraduate degree courses in New Media/ Multimedia/ Interaction Design, which required first year students to produce digital material (web-based, interactive, animation).

- Population three: Non-designers were required to act as a control group. These participants were not trained in a design or art-based university education. This sample was obtained from a range of educational backgrounds: basic skills centres, further education, and university students by contacting course leaders.

Across the three populations a sample size⁷⁰ of 30+ was deemed necessary for sampling for each. In terms of the design practitioners, 30 digital-based and print-based design practitioners were required. In addition, to reduce cultural bias, each population was drawn from U.K. nationals.

⁷⁰ Cohen, *et al.*, (2000, p.93) advised “the correct sample size depends on the purpose of the study and the nature of the population under scrutiny.” Additionally, a sample of thirty is seen as the minimum number needed in each population to carry out comparative statistical analysis on the data (Cohen, *et al.*, 2000; Gliner and Morgan, 2000). In this research it is not necessary to describe the population, merely to identify the key factors that may influence students’ visual skills in a digital era (the dependent variable being on- and off-screen visual literacy skills users). Also, as the researcher intends to compare the population sample, each sample should have in excess of 30 participants.

1.5 Validity and Reliability

Within the experiment it was necessary to demonstrate potential threats to validity and reliability⁷¹. Therefore the following three types of validity outlined by Carmines and Zeller (1979, pp.17-22) were considered when devising the content of, and approach to, the visual experiment:

- Criterion-related validity refers to the effectiveness of the measurement procedure (scale of measurement and statistical data), i.e. the visual experiment measured the variables referred to in its objective of exploring what visual skills are required to working in a screen-based medium. This involved understanding whether changes had occurred in each population's visual skill in a digital and print domain, as well as through comparison across the three populations. There were issues that could affect the criterion-related validity, such as participants who were not primarily educated in the U.K., those who are colour blind, inclusion of those with design or art-based education in the non-designer population, and ensuring that the professional designer had over three years of experience. During the data collection, or shortly afterwards, the sample was reviewed for each of these potential threats to criterion-related validity, as each of these elements can affect the measurement of visual literacy skills and statistical data yielded.
- Content validity refers to whether the measurement tools (the website, including the on-screen visual experiment material, and the off-screen visual experiment pack and matrix sheet) are consistent in their representation of the domain and visual literacy skills being measured. In this visual experiment, the ten images used to measure each visual skill were presented in the same order in both the digital and print visual experiment material.
- Construct validity should demonstrate the accuracy with which an instrument measures a given construct. During the pilot study, each visual skill was reviewed in terms of question wording, data capture and images used in the experiment, to ensure unintended factors did not affect the measurements of the construct⁷².

In terms of potential threats to reliability (Feldt and Brennan, 1993, cited in Cohen *et al.*, 2000, p.130), four areas were considered:

- Individual (e.g. motivation, concentration, guessing).
- Situational factors (e.g. the psychological and physical conditions for the test – the context).
- Test maker factors (e.g. idiosyncrasy and subjectivity).

⁷¹ Validity involves ensuring that what is intended to be measured is measured, whereas reliability refers to the consistency of the measuring tools (Carmines and Zeller, 1979, p.11).

⁷² In the pilot study not everyone was reviewing all the available images in the off-screen experiment material. To address this issue, the images were not randomised and instructions were changed.

- Instrument variables (e.g. poor question, length of the test, mechanical errors, scoring errors, computer errors, unclear or ambiguous instruction).

Issues of validity and reliability were reviewed in a pilot study that was conducted in two phases. The first phase involved third year students from the Multimedia Design degree at Northumbria University and was intended to identify potential problems with the test material such as ambiguous wording, imprecise instructions, delivery mechanism and reliability of the data capturing methods. The second phase was peer review with researchers and designers from print and digital-based backgrounds, with the intention of identifying issues of how and which visual literacy skills were examined. Feedback from both stages was obtained through evaluation using forms completed by students and peers. Descriptive analysis was performed on the data obtained to determine the reliability and validity of the visual skill being measured. As a result, changes were made to the methodology, data collection and analysis as appropriate, i.e. questions were removed, scales of measurement refined, testing procedures simplified and ambiguous wording removed.

1.6 Data Coding, Screening and Reduction

Data coding, screening and reduction for this visual experiment were influenced by De Vaus's (2002b, p.147) six stage coding process:

- Classifying responses
- Allocating codes to each variable
- Allocating column numbers to each variable
- Producing a codebook
- Checking for coding errors
- Entering data in Statistical Package for the Social Sciences (SPSS[®])

Each visual experiment response was pre-coded for analysis in SPSS[®], using the codebook. The variables were captured using a website, Adobe Flash File[®] and Active Server Pages[®] to a Structured Query Language (SQL) database and then input to SPSS[®]. Data screening occurred within SPSS[®] using visual inspection of participants' personal details and question responses. The data were rationalised and then reordered following the removal of respondents outside the specified criteria. These included participants not primarily educated in the UK; incomplete responses; colour blindness; the respondents in the non-designers sample with design or art-based education, and professional designers with less than three years' experience.

1.7 Data Analysis and Observations

Statistical representation of descriptive analysis depends on the level of measurement required, as shown in Table 1.6. This determined that the visual discrimination, visual association and constructing meaning skills yielded an interval measurement; therefore three statistical types are involved: central tendency, in terms of the mean value; variance and standard deviation that would show a measurement of dispersion; and the kurtosis and skewness would describe the shape of the distribution. Responses from knowledge of visual conventions skills yielded a nominal measurement, therefore two statistical types are involved: central tendency, in terms of the mode value; and variation ratio⁷³ summarising the degree of variation in the mode value (De Vaus, 2002b, p.222).

Table 1.6: De Vaus's (2002a, p.233) summary of statistics according to the level of measurement

Type of statistic	Level of measurement of variable		
	Nominal	Ordinal	Interval
Measure of central tendency: Statistics that indicate typical or average characteristics in the distribution.	Mode	Median	Mean
Measure of dispersion: Statistics that indicate the degree of variation.	Variation ratio	Range, decile range, interquartile range	Variance, Standard deviation
Shape: Statistics that indicate the shape of a distribution.			Skewness ⁷⁴ Kurtosis ⁷⁵

Statistical representation of descriptive analysis depends on the level of measurement required, as shown in Table 1.6. This determined that visual discrimination, visual association and constructing meaning skills yielded an interval measurement; therefore three statistical types are involved: central tendency, in terms of the mean value; variance and standard deviation that would show a measurement of dispersion; and the kurtosis and skewness would describe the shape of the distribution. Whereas responses from knowledge of visual conventions skills yielded a nominal

⁷³ Variation ratio "shows how descriptive the MODE[sic] is of the data. It is calculated as the proportion of cases that are not in the modal category. The variation ratio ranges from 0 to 1... 0 attained when all cases are in the same category. Thus, zero values show that there is no dispersion on the variable. The upper bound of the variation ratio is maximal when the mode is 1, meaning that each category has a frequency of 1 so there is complete dispersion on the variable... The advantage of the variation ratio as a measure of dispersion is that it is simple to compute. Its disadvantage is that it ignores much of the information in the data because it does not take the full distribution of cases into account" (Lewis-Beck, *et al.*, 2004, p.1178).

⁷⁴ De Vaus (2002a) has defined skewness as "The skewness statistic indicates the degree to which a distribution is asymmetrical. A positive value indicates a positive skew, a negative values reflect a negative skew while a skewness of 0 indicates symmetry. A normal distribution will have a skewness of 0. A skewness of greater than 1 in absolutes value normally indicates that distribution is non-symmetrical." (p.224).

⁷⁵ De Vaus (2002a) has defined kurtosis as an indicator of "the degree of 'flatness' or 'peakedness' in a distribution relative to the shape of a normal distribution" (p.226).

measurement, therefore two statistical types are involved: central tendency, in terms of the mode value; and variation ratio⁷⁶ summarising the degree of variation in the mode value (De Vaus, 2002b, p.222).

Two levels of information were derived from the findings of the visual experiment. The first, and most in-depth level, is a full descriptive analysis of the three populations' use of visual literacy skills in each domain. However such detailed analysis would distract from the main findings due to the volume of data making conclusions problematic. Therefore, a second level was considered necessary. This simplifies the visual experiment's findings, by visually mapping the standard deviation or variation ratio results for the three populations' use of visual literacy skills in each domain. Visual mapping enabled more effective analysis of the data, as the standard deviation⁷⁷ or variation ratio⁷⁸ are measures of dispersion, enabling the spread of values around the mean or mode values to be compared and contrasted.

⁷⁶ Variation ratio "shows how descriptive the MODE[sic] is of the data. It is calculated as the proportion of cases that are not in the modal category. The variation ratio ranges from 0 to 1... 0 attained when all cases are in the same category. Thus, zero values show that there is no dispersion on the variable. The upper bound of the variation ratio is maximal when the mode is 1, meaning that each category has a frequency of 1 so there is complete dispersion on the variable... The advantage of the variation ratio as a measure of dispersion is that it is simple to compute. Its disadvantage is that it ignores much of the information in the data because it does not take the full distribution of cases into account" (Lewis-Beck, *et al.*, 2004, p.1178).

⁷⁷ If a high standard deviation were observed in the data this would indicate that the data set has a wide spread with notably higher/lower figures than the mean; that is, the participants would have been less alike in their selections. Hence if a low standard deviation was observed, the data set is clustered around the mean value, thus the participants' selections were more alike.

⁷⁸ As a variation ratio shows the percentage of cases that are not in its modal category, if a variation ratio's value nears 0 it shows that the modal value was more representative of the sample. Participants were more consistent in their selection for higher variation ratio values, nearing 1.

APPENDIX TWO: Design Experiments - Method and Evidence

2.1 Content Analysis

Content analysis entails using systematic, replicable techniques to compress texts into fewer content categories based on explicit rules of coding (Krippendorff, 2004, p.3; Weber, 1990). It is a useful technique to enable discovery and description of the focus of individuals, groups or institutions (Weber, 1990, p.9) and is concerned with inquiring into the deep meaning and structure of a message or communication. The message may be contained in a written document, a communications broadcast, film, video or in actual human behaviour observed. The goal is to uncover hidden themes, concepts and indicators of the message content (Robson, 2002, p.358).

An approach to content analysis was devised to obtain an objective evaluation of the teaching-learning artefacts devised during each student project and enrich the description of the co-participants' interactions with the learning situation in the design experiment. A code described below was devised to conduct repeated analyses of students' visual actions during each project in the design experiment.

There are two types of coding used in content analysis, pre-set and emergent (Neuendorf, 2002, p.194). Pre-set coding involves determining categories prior to the analysis based upon theory, whereas emergent codes are used to capture categories which may not have been considered earlier. According to Krippendorff (2004, pp.99-101) there are three units concerned when devising a code to conduct content analysis, which are:

- Context units are units of textual matter that set limits on the information to be considered in the description of recording units.
- Sampling units are distinguished for selective inclusion in an analysis.
- Recording units are distinguished for separate description, transcription, recoding or coding.

Each of the above units informed the development of a code to analyse the students' artefacts obtained during each student project:

1. Context units: For this research, four categories of context units were established:
 - (a) Reflection unit: Brockbank and McGill's (1998, p.81) five dimensions of reflective learning draws on solo and social reflection (see Section 3.3.1, p.43). Their dimensions of reflective learning provided an overarching schema for analysing the dimensions of students' reflection on visual practices. A sixth dimension: After Action – reflexivity on visual practices – was added to this schema as the overarching purpose of the reflective process in this study was concerned with enabling design students to reflect on and then develop their own visual

approaches to engagement in a visual context. This was a pre-set category that did not change during the content analysis.

- (b) Student artefact unit: This category coded where the evidence was found in the student artefact and changed, depending on the student project and artefacts being coded.
 - (c) Teaching-learning artefacts unit: The teaching-learning artefacts have been coded only when they have aided reflection on and developments to visual practices. The coding of the teaching-learning artefacts was dependent on the student project. In addition, an open code was created to capture other teaching-learning artefacts students had recorded in their Learning Log.
 - (d) Students' activities and explanation unit: An open category was used to capture the condition of students' reflection, behaviours and activities involved in visual practices.
2. Sampling Units: This sampling unit recorded how many times students reflected on their visual practices during a week. A unit was recorded when a reflective dimension (outlined above in the reflection category) was observed. To enable continuity for each project, the same students artefacts (Learning Logs) were sampled from the twelve students from the subgroup of co-participants (*see* Section 6.2.3, p.110).
 3. Recording Units: Three units were recorded weekly (under all six dimensions of reflective learning) in order to ensure stability over each student project: the first unit recorded during which of the twelve student artefacts the observation had occurred (i.e. student ID 1-12), the second unit coded where the activity was found in the student artefacts and the third unit provided a one or two word description of the activity. To ensure accuracy of recording, the process of coding was carried out through a review of each student activity in a week, beginning with Brockbank and McGill's (1998, p.81) first dimension of reflection and continuing through the stages to capture the sixth dimension: After Action.

2.2 Teaching-learning Artefacts

The teaching-learning artefacts devised during the three student projects are described in this section. This includes the name of the artefacts, the stage of the design process (research, concept generation, development, prototype and final presentation) it was implemented and a description of development and use.

2.2.1 The First Student Project

The following five teaching-learning artefacts were devised during the first student project:

Teaching-learning artefact one: Learning Log

Stage in design process: All

Aim: To help students to reflect and articulate visual decisions.

Description: Students were given a Learning Log template and asked to explain their process weekly using the following six parts (*see* Figure 2.1):

- Plan – idea: ‘Idea’ should include problem analysis and a strategic plan.
- Experience – search: Detail the information ‘searched’ or looked at, details, styling, trends, materials, cultural influences, inspiration, management, ways to perform better.
- Experience – design/do: This requires a ‘to do’ list which describes how they implemented their strategy or plan. E.g. Detail what I did, what I thought, how I reacted, why I was calm.
- Observe: observe what happened. What happened to the project or the situation when I did...
- Observe – rate: ‘Rate’ project/learning exercise and my actions using appropriate methods and techniques. How I feel about the actions?
- Reflect: Reflect on the result of the rating and on the whole action and the research process. Consider your learning styles on reflection. This may lead to a new problem which requires development of a strategy which can then be implemented into the next cycle. A new Idea!

Every week of the student project, students were asked to complete and upload the Learning Log template to Blackboard® (an e-learning portal). At the outset of the first student project, guidance was provided (*see* Figure 2.2) and a lecture on the Learning Log (*see* Figure 2.3) to explain the aspects of the template.

OBSERVE- Rate
 'Rate' project/
 learning exercise and
 my actions by
 appropriate
 methods and
 techniques.
 How I feel about the
 actions?

REFLECT
 Reflect on the result of the rating and on the
 whole action and the research process.
 Consider your learning styles on reflection.
 This may lead to a new problem and then
 implement into the next cycle. A new Idea!

OBSERVE
 Observe what happen. What
 happened to the project or the
 situation when I did...

PLAN- Idea
 'Idea' should include problem
 analysis and a strategic plan.

EXPERIENCE- Design/do
 Design refers to the
 implementation of the strategic
 idea or plan.
 Detail what I did, what I thought,
 how I reacted, why I was calm.

EXPERIENCE-Search
 Detail the info 'searched'
 or looked at, the details, styling,
 trends, materials, cultural,
 inspiration, management, ways
 to perform better.

to do list

date

log no.

Figure 2.1: Learning Log version one template

A

Each learning log entry requires support material. Explaining what and more importantly **why** you did it.

Note: The support material is required to be referenced in the 'learning log' entry sheet by (a) (b) (c)... see example on the next page...

B

For example...

Learning log 1:
Support material

(a) Experience (search and design)
From my plan I set out to selected 3 bands in the genre I selected.
I selected My Chemical Romance, The Killers, Sebey Sisters, to inform me of the visual language of this genre.

(b) Experience (search and design)
After I analysing the music in the genre. Then, I selected one band to look at in more depend- My Chemical Romance. This was to understand what they are saying visually about themselves as a band.

The questions I ask myself were...

Provide the image and annotation note and/or discussion with peers etc... about of the album.

Figure 2.2: Learning Log version one guidance

<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>Learning Log</h2> <hr/> <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>	<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>Learning Log</h2> <p>"Learning from experience"</p> <p>"A journal is also a tools for self-discovery, an aid to concentration, a mirror for the soul, a place to generate and capture Ideas... a good friend."</p> <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>
<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>Why...</h2> <ol style="list-style-type: none"> 1. A way to plan your project 2. Engage you in learning and improves confidence 3. Way of understand your learning 4. The way you develop your visual skills <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>	<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>Developing visual skills</h2> <p>"Visual thinking is the ability to 'see' the intangible (for example the emotions and sensorial) characteristics that inform an individual's understanding when assessing and addressing a situation."</p> <p>Drawing is a designer "conversation with the material"</p> <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>
<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>Developing visual skills</h2> <p>Each design context or material you work with require a different set of visual skills and value judgment.</p> <p>It require each person to develop a their visual awareness.</p> <p>Visual skill can only be fostered through experience.</p> <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>	<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>What does it involve?</h2> <p>Plan</p> <p>Experience</p> <p>Observe</p> <p>Reflect</p> <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>
<p>Unit Title: Publishing Design 01</p> <p>Tutor: Emma Jefferies Version 1.0: 20/10/06</p> <h2>Conclusion</h2> <p>It is import of your peers to help you with your log, but the learning log:</p> <p>is a way for your to plan want you are doing</p> <p>It is your personal tools to developing skills to communicate</p> <p>University of Northumbria at Newcastle Department of Design</p> <p>BA (Hons.) Multimedia Design Level: One</p>	

Figure 2.3 Learning Log lecture

Teaching-learning artefact two: Critical Viewing

Stage in design process: Concept generation

Aim: To develop students' understanding of looking and seeing.

Description: In four groups, students were given a different set of questions: Group A – What is the difference between looking and seeing?, e.g. What is the difference between Sherlock Holmes looking at a stain on the carpet or someone else looking at the same stain?, Group B – What are semiotics?, Group C – What is context?, Group D – What is the difference between the act of seeing when driving a car and taking a picture? Students were asked to find the answer to these questions from an excerpt from Schirato and Webb (2004). Each group was given a large sheet of paper and pen to brainstorm the answer. Then the groups presented their understanding to the class, which created a debate about how people see.

Teaching-learning artefact three: Reading the Visual

Stage in design process: Concept generation

Aim: To help students to critically question a visual image.

Description: Each student was given a worksheet of questions (*see* Figure 2.4) about the visual elements, audience and context that they used to analyse an image they had produced. The same activity was then implemented to read a peer's image.

Reading the Visual

Reading the visual involves developing the ability to question in an ordered approach, by following the 5 steps below:

Step 1. The visual message

- (a) What is being shown?
- (b) How was it made?
- (c) What technologies was it made from?
- (d) When was it made?

Step 2. Defining the visual message

- (a) Where is the viewer's eye drawn to in the image, and why?
- (b) What are the visual components of the image and how are they arranged?
- (c) What relationships are established between the components of the image visually?
- (d) What use is made of colour/scale/contrast?
- (e) How has the image been represented- literally or symbolically?
- (f) What is the visual image not telling you?
- (g) How has its technology affected the text?

Step 3. Who is involved

- (a) What is the audience?
- (b) Who is the media intended for?
- (c) Whose point of view does the media take?
- (d) Who were the original audience(s) for this image?
- (e) Where and how would the text have been displayed originally?
- (f) How is it circulated?
- (g) How is it stored/ redisplayed?

Step 4. The argument

- (a) Why was a certain media selected?
- (b) How is the message affected by what has been left out?

Step 5. The assumptions

- (a) What feelings are you thinking of?
- (b) What points of view are assumed?

Theory into practice

Task 1: Place your notes from this session in the 'learning log.'

Task 2: Follow this session up by discussing what you have learnt and analyse 2 of the images in your 'learning log'.

Figure 2.4: Reading the Visual worksheet

Teaching-learning artefact four: Reading the Narrative

Stage in design process: Development

Aim: To help students give feedback and read the narrative in their peers' work.

Description: This activity was inspired by a gallery, where students place the music they have selected as inspiration to their work on a computer around the room and displayed the four images they had produced above the computer on the wall. Each student was asked to look at three people's work and document the narrative of all 4 images, using Post-Its[®]. Students were asked to comment on: (a) The strengths and weaknesses of the images (b) What do the layout and images say? (c) How does it make you feel? Students used the Post-Its[®] received on their own images to question, Have you gone far enough?, How does your work compare to that of others?, Whose image do you feel is most effective? Then they were asked to record this process in their Learning Log as part of the reflect section.

Teaching-learning artefact five: The first version of the Sherlock Holmes Personas

Stage in design process: Final presentation (design critique)

Aim: To give students a reflective framework for peer and tutor assessment.

Description: The Sherlock Holmes Personas enable students to understand how they were reflecting on their work. The Personas were developed through observing and communicating patterns in the students' Learning Logs through the following four stages:

Stage 1: Observation of a community's reflective practice

Being able to reflect was the key learning attribute in the development of visual practices; (*see* Section 5.2.3, p.86: designers' visual practices are constructed *in situ* through facilitating social interactions and that such interactions enable individuals to reflect on their visual practices to develop approaches which are then used to engage and develop visual contexts. The idea behind the identification of developmental stages in visual practices was to observe reflective approaches to improve practices. In theory, if students were more able to reflect they would improve and develop their own visual practices, finding new ways to engage in visual contexts. Perkins' (1994) conversations between Dr. Watson and Sherlock Holmes were revisited. These conversations describe how visual literacy is applied in action to solve a problem. A direct relationship emerged between students who reflected on their work, and Perkins' description of Dr. Watson's way of seeing. Similarly, there was a strong relationship between Perkins' description of Sherlock Holmes's way of seeing and students who were reflecting on their work and themselves. Therefore the initial analysis of students' Learning Logs had defined three developmental stages of reflection involved in visual practices:

1. Students showed little or no reflection in/on their work or themselves.
2. Students reflected on their work.

3. Students reflected in/on their work and themselves.

In order to sample the depth and breadth of the identified development stages, four students from each development stage were asked if they were willing to allow their work to be used to aid the study. A total of twelve students formed a subgroup of co-participants on which a metaphor that communicated a community's reflective practice could be developed.

Stage 2: Communication of a community's reflective practice through a metaphor

The day before the final design critique, the Learning Log obtained from each of the co-participants who had agreed to be part of study was further explored to inform the design of the Sherlock Holmes Personas⁷⁹ (see Figure 2.5). The hound was added to encourage students who did not reflect already to see the value of reflection. Each persona had a quote, a profile and a description of skills drawn from the four students of the relevant sub-group.

Alongside the normal marking process, peers and tutors participating in the design critique were asked to evaluate which characteristics of the Sherlock Holmes Personas were evident in the students' work. The Sherlock Holmes metaphor was explained to the students at the beginning of the design critique, as the different ways a person can reflect during a design project: For example the Hound sits around, the Cleaner never questions, and Dr. Watson has two facets, in that he can question and see the need for change but is unable to carry it out, or can question to earn credit but has no intention of using the answers in his deductions. Conversely, Sherlock Holmes can reflect and use this insight and other people's perspectives to improve the way he works.

The students and tutor had feedback sheets to tick and comment which character most suited the way their peers had worked. They had the Sherlock Holmes Personas sheet (see Figure 2.5) as a reference in front of them. Students and tutors both allocated Personas when a student was presenting their work.

⁷⁹“Personas are archetypal users of an intranet or website that represent the needs of larger groups of users, in terms of their goals and personal characteristics. They act as standins for real users and help guide decisions about functionality and design. Personas identify the user's motivations, expectations and goals responsible for driving online behaviour, and bring users to life by giving them names, personalities and often a photo. Although personas are fictitious, they are based on knowledge of real users. Some form of user research is conducted before they are written to ensure they represent end users rather than the opinion of the person writing the personas” (Calabria, 2004, p.1). The greatest value in using personas is as a basis for sharing communication (Pruitt and Grudin, 2003, p.3), which is of particular importance when working in fields involving visual literacy where communication is implicit.

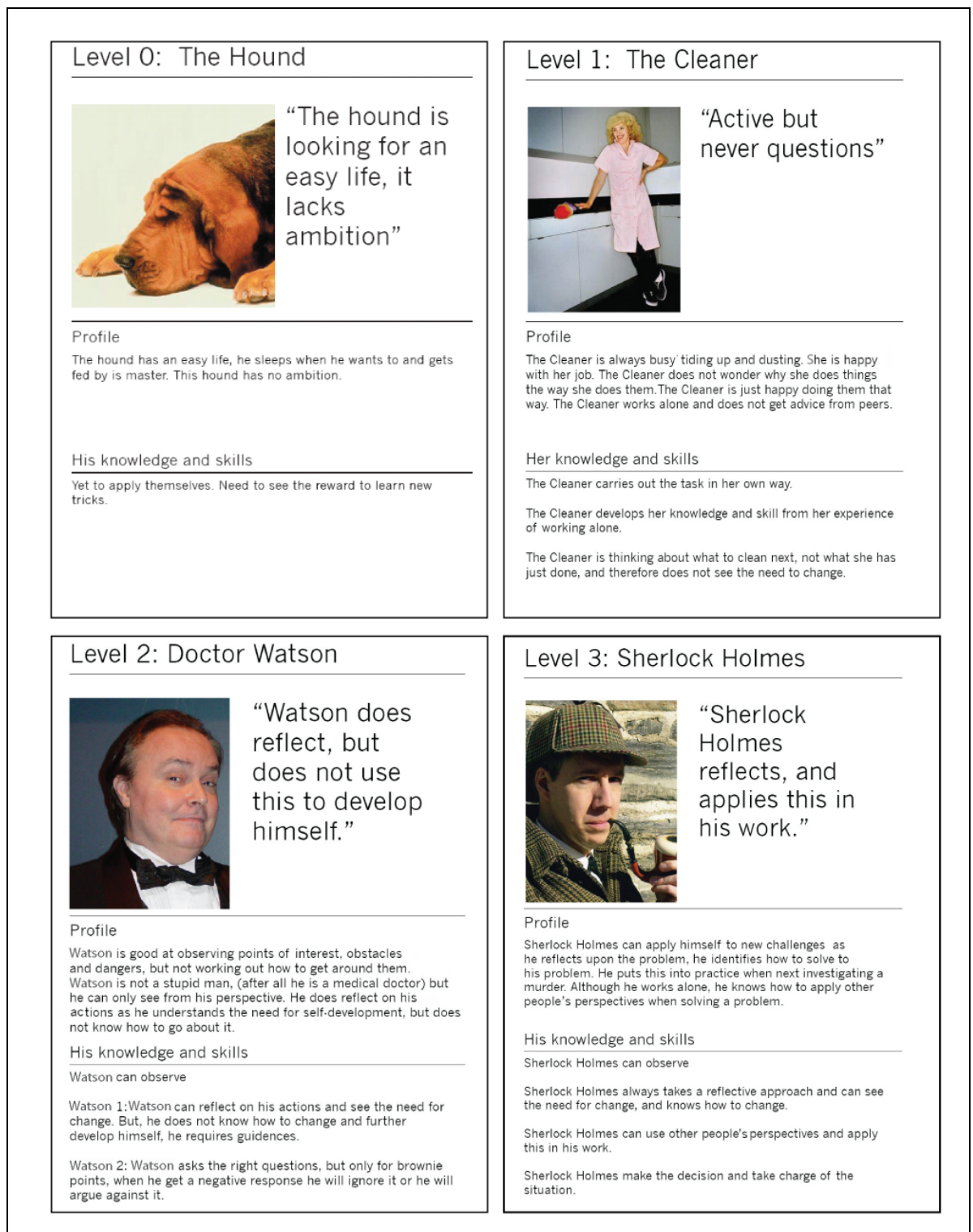


Figure 2.5: Sherlock Holmes Personas Version One

2.2.2 The Second Student Project

The following four teaching-learning artefacts were devised during the second student project.

Teaching-learning artefact one: Learning Log simplification

Stage in design process: Concept generation

Aim: To aid students to gain value from the Learning Log and assist reflection on visual practices.

Description: Learning Log simplification involved five stages over a number of sessions:

1. Observation: Each student was asked to share one week of their Learning Log with the group. This resulted in highlighting problem areas that had stopped them from reflecting and seeing the value of self-assessment.
2. Summary observation: Stage 1 was recorded and summarised to see where students were unable to understand the Learning Log.
3. Peer review: This stage involved a discussion with a peer about how students were reflecting in their Learning Logs. This discussion led to the understanding that students did not see the value of them with most perceiving it as a timetable. In addition, students did not understand the differences between the observe and reflect sections in the Learning Log.
4. Student review: The perceived problems identified in stage 3 were discussed with two students after a studio session. This discussion led to the suggestion the Learning Log should be simplified into three boxes, Plan, Do and Reflect and the two Observe boxes should be removed.
5. Revising the Learning Log: Students were informed the Learning Log was going to be revised, to help them realise it was not a timesheet but a place for them to explore their visual use and learning. They were allowed to make the final decision about what they wanted to call the boxes in their Learning Logs. They were happy to remove the observe rate box and change the remaining boxes into three steps: Plan, Do and Reflect (*see* Figure 2.6).

OBSERVE-Reflect

For now I am going to try and focus on the idea of this being online publishing rather than a website and try and keep developing my themes of metaphors as I go along. I am also starting to feel like I actually am understanding the reasons why I am doing my work the way I am.

SEARCH-DO

To get an idea of things to include in my "city", I felt it was time to go out into the city that I now live in and use it to my advantage. I will take my camera out with me and take photos of things that I think will be useful for holding information such as, eg. bus time tables.

Once I had my photographs I then went to next step and started to sketch ideas out for the website with ideas from the images I had already created, the photos I had taken and also ideas I already had in my head that would fit. I did this so that I would be continuing on my packaging theme and also include realistic looking objects. My plan was to take all my sketches into photoshop or illustrator and create them this way.

I also wanted to look for maps of cities as well to create a shortcut guide and plus this will help me plan out where to place things for mine. I will also have to take and take more photographs of plants, trees, park benches in order to create the park I wish to include. Other features I am thinking of including would be a dock and a subway.

As requested I am also going to look at a designer of my choice and try get some inspiration from them to include in my work and try to understand the way they work and why.

PLAN

Keeping in mind from my reflection in log 1.0, that this project is about publishing rather than promotion my main focus point will be to develop my website with idea of layout and content in mind and what I will include and how. I found it very hard to narrow my choices down, simply because I have heard other people talking about developing a "city" theme for their website. At first I was more inclined to follow on with the concept of a "solar system". However I found myself wanting to follow through with the "City" theme and try create something different to how everybody else will.

Now that I have my theme set, I will develop this further. I will do this so I have a reference of things I need to include. This will also help me to think of different ways to actually create the site. So far I had thought about following on the CD Packaging theme that I had which would consist of three or four colours throughout. I want to keep my options open and try to approach this with as many possibilities as possible to ensure I get the best possible outcome I can.

date 08/12/2006
log no. 2.0

12.01

Figure 2.6: Example of Student 8's Learning Log version two

Teaching-learning artefact two: Feedback Session

Stage in design process: Development

Aim: To enable students to give a range of feedback to their peers on their visual practices.

Description: In this feedback session students displayed their work on screens around the room. Then, as a group, they were asked to create and record guidelines for gaining feedback from or giving feedback to their peers, one positive and negative attribute, also it was suggested they should not use the word 'good', requiring them to be more specific in their approach e.g. How is it good? Why is it good? What makes it good? It was hoped students would become more involved in giving feedback and taking it on board through the creation of their own guidelines.

Teaching-learning artefact three: de Bono's Six Thinking Hats

Stage in design process: Prototype

Aim: To enable students to give a range of feedback to their peers and be open to feedback.

Description: Students were asked to place their visual work on computer screens around the room (using the worksheet shown in Figure 2.7). They were then asked to review the work on the computer screens and use Post-Its[®] to give feedback for each of de Bono's Six Thinking Hats. Then they collected their Post-Its[®] with the feedback and a discussion took place asking them how they would use this advice, enabling them take control of their learning.

Bono Six hats - thinking modes giving directions for thinking

Design is not about “what is...” but “what can be...”



White: facts

- Objective facts/figures
- What is needed?
- How can it be found?



Yellow: Benefits

- Logical and positive
- Why will it work?
- Why will it benefit ?



Red: Gut feelings

- Intuition
- Feelings
- Emotions



Green: Idea generation

Creativity, alternatives, proposals
what is interesting



Black: Drawbacks

Judgment, caution,
logical, negative views,
weak points



Blue: Summarise

Overview or process control

Figure 2.7: de Bono's Six Thinking Hats worksheet

Teaching-learning artefact four: Sherlock Holmes Persona Version One (*see* Figure 2.5)

Stage in design process: Concept and final Presentation (design critiques)

Aim: To develop communication and reflection during a design critique.

Description: The Sherlock Holmes metaphor was used as a method for gathering peer and tutor feedback. Each student had a feedback sheet to tick and comment on which Persona most suited the way their peers had worked. They had the Sherlock Holmes Persona sheet as a reference in front of them. To develop a supportive environment for social interactions, students at the start of the design critique were first asked how they wanted feedback to be given. They had a time restriction of ten minutes to present their Learning Log, and their final piece of work live on the web. In order for the session to be led by the students, they were asked to give each other feedback before the tutor.

2.2.3 The Third Student Project

The following eight teaching-learning artefacts were devised during the third student project.

Teaching-learning artefact one: Group Brainstorm

Stage in design process: Ideas

Aim: To use a brainstorming technique to show students how to extract core values of a selected philosophy.

Description: Students were asked to brainstorm the Hippy Movement as a group. This was done by first considering areas which are associated with the movement, when it was, why it happened, what was against it, the language used, events, lifestyle, visual style, travel, and then consider why it ended (*see* Figure 2.8). Then students were asked to circle the social, historical, cultural and political elements in the brainstorm they had created. Students then extracted a list that helped them to investigate their selected philosophy (*see* Figure 2.9).

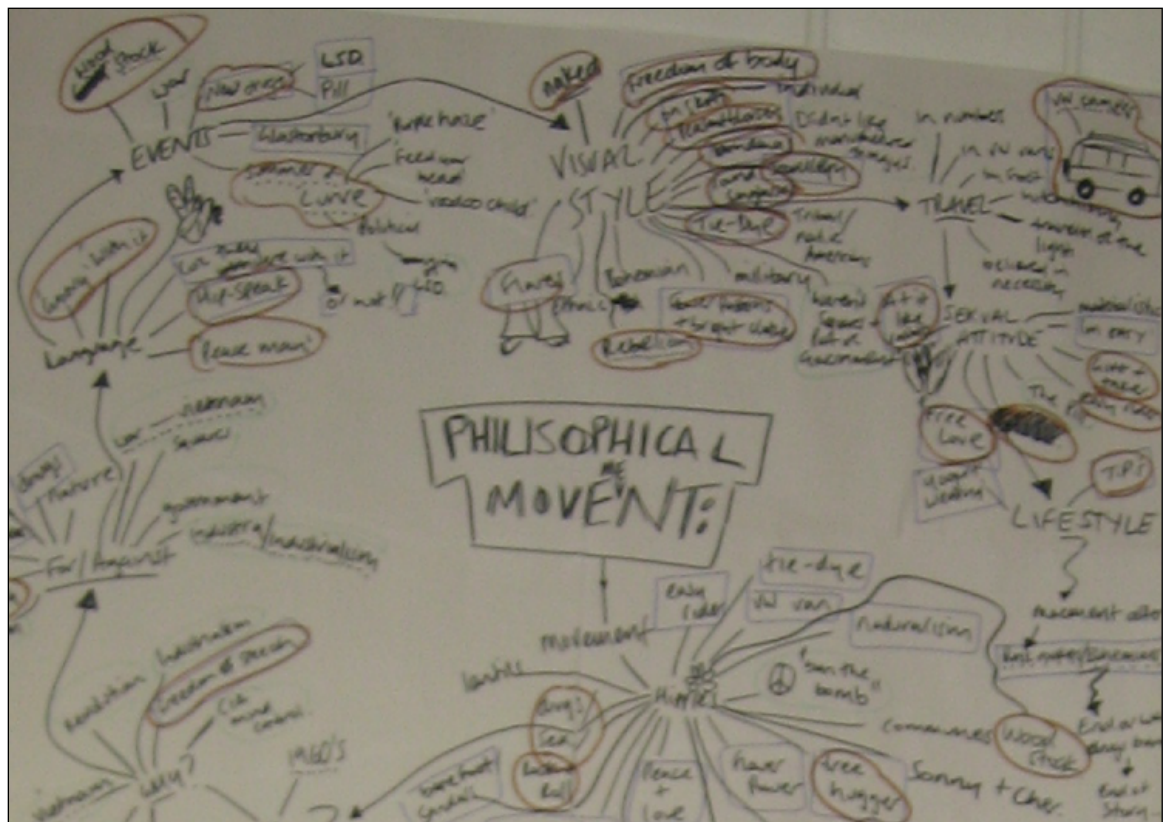


Figure 2.8: A group brainstorm that the student created of the hippy movement

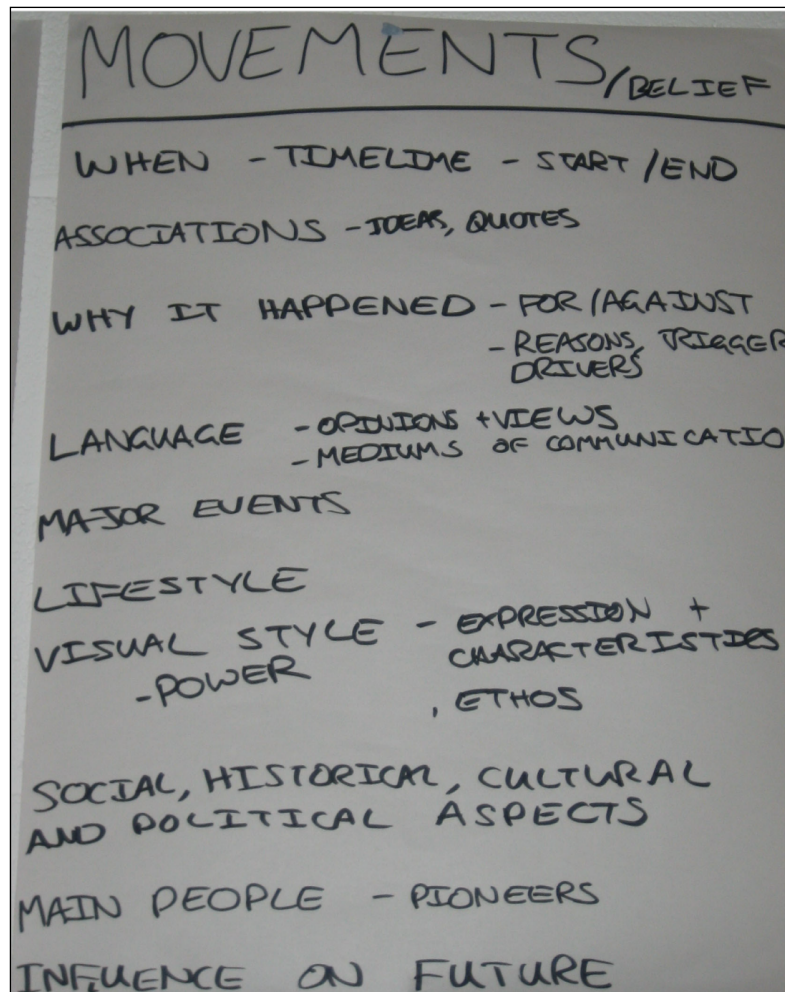


Figure 2.9: A list extracted from the group brainstorm activity to help students investigate their selected philosophy

Teaching-learning artefact two: Brainstorming

Stage in design process: Concept generation

Aim: To use the group brainstorming process to map out and help students understand their selected philosophy.

Description: Based on the lists students created in the Hippy Movement brainstorm, each individual then created their own list, using the research they had collected on their selected philosophy.

Teaching-learning artefact three: Group Discussion of Philosophy

Stage in design process: Concept generation

Aim: To aid students to understand their chosen philosophy through understanding the opposing philosophy.

Description: Students were placed into groups of opposing philosophies (holism/reductionism, modernism/post-modernism, structuralism/post-structuralism), to enable them to understand a way of seeing that lay beneath their chosen philosophy. Each group was asked to discuss their brainstorm, then analyse a magazine cover using the values and way of seeing of the opposing philosophy. In addition, each group was asked to develop personas based on the attributes of their philosophy, which they later could develop independently.

Teaching-learning artefact four: Personas

Stage in design process: Ideas

Aim: To aid students to construct a persona to give greater meaning to their selected philosophy.

Description: Students were asked to create a persona based on their selected philosophy, using their brainstorm as a reference.

Teaching-learning artefact five: Self-Evaluation Activity

Stage in design process: Ideas

Aim: To enable students to reflect and identify possible improvements to their visual practices.

Description: Students were asked to review their Learning Logs from the first and second projects in chronological order, identifying and recording with Post-Its[®] any instances where they were looking and seeing and which Sherlock Holmes Personas they were portraying. The self-evaluation activity involved asking students to complete the following steps:

1. In groups, students were introduced to the second version of the Sherlock Holmes Personas (see Figures 2.12). Then they were asked to think about the Personas and identify how each of them would tackle a design problem and record this on a large sheet of paper.
2. Then individual students placed their printed Learning Logs from the first and second projects in front of them in order and used Post-Its[®] to identify where they had been looking and seeing in their Learning Logs
3. Next students talked with a partner about what they observed in their Learning Logs and discussed areas for improvement.
4. Students were given feedback sheets on the characteristics they portrayed in their work during the last two projects.
5. At the end of this activity students wrote a summary (50-150 words) of what they had learnt about how they see, and areas of improvements.

Teaching-learning artefact six: Sherlock Holmes Personas Version Two

Stage in design process: Concept Presentation and final Presentation (design critiques)

Aim: To facilitate students to develop and reflect on a shared understanding of visual practices.

Description: A new version of the Sherlock Holmes Personas (*see* Figure 2.10) was developed to address the issues that had arisen with the original version. The first was that the personas did not describe how each character was seeing. From using de Bono's Six Thinking Hats, a second issue arose: students required encouragement to progress to the next character, in order to support their improvement and help them to adapt their visual practices to different contexts. The third issue arising was that barriers had been overlooked, such as negativity, that could stop students from developing their visual practices. A fourth issue was identified: it was apparent that the Sherlock Holmes Personas had to involve an overview of the whole person, e.g. their goals, fears and aspirations. For example, The Cleaner was a reference to an occupation in a negative fashion, and did not adequately portray a whole person. The fifth issue that arose from the study of Pruitt and Grudin's (2003) paper was that the personas in use were based on one data set; to further explore visual practices a triangulation of data was required.

The following stages were followed to address these issues when developing the new version of the Sherlock Holmes Personas:

Stage 1: Observation of a community's visual practices

The following steps were taken to observe a community's visual practices:

Step 1: Review peer, tutor and researcher evaluation of students' work using the original Sherlock Holmes Personas: The second version of the Sherlock Holmes Personas developed from the same sub-group of students who had informed the first version. This was because a review of feedback from the design critique had shown students selected in the first version had demonstrated the same characteristics as they had earlier in the initial selection. Table 2.1 shows the researcher's, supporting module tutor's and an average of peers' allocation of Sherlock Holmes Personas during the design critiques for each of the selected twelve students in this study. In this table a number between 0-1 refers to the Hound, 1-1.9 refers to the Cleaner, 2.0-2.9 refers to Dr. Watson and 3 refers to Sherlock Holmes. Table 2.1 demonstrates a strong association to the initial allocation of the personas in the first student project. The twelve students were found to have continued in the same category as at the initial selection, therefore it was decided each persona would be developed on them.

Table 2.1: Sherlock Holmes Personas feedback from the first and second student project

Student ID	Design critique in first student project			Design critique in second student project		
	Researcher's feedback	Supporting module tutor's feedback	Average of peers' feedback	Researcher's feedback	Supporting module tutor's feedback	Average of peers' feedback
Cleaner = 1-1.9						
1	1	3	2	1/2	3	2
2	1	1	1.66	1	1	1.667
3	1	1	1.6	1/2	3	2.3
4	1	1/2	1.8	1	1	1
Dr. Watson= 2-2.9						
5	2	2	2.75	2/3	2 3	2.25
6	2	2	2.6	2/3	2 3	2.8
7	2	2	1.7	2	2	2.5
8	1	2	2	2	/	2.5
Sherlock Holmes= 3						
9	3	3	2.4	3	2 3	2.714
10	3	3	2.7	3	3	3
11	3	3	2.6	3	/	2.8
12	3	2	3	3	2/3	2.5

Step 2: Gathering evidence to investigate looking and seeing

The following data was captured to investigate when the twelve students had been looking and seeing:

- The researcher's reflective observations
- Students' Learning Logs from first and second student projects
- Semi-structured interviews conducted with the twelve students following the first student project

The review of this data distilled the visual practices (materials, processes and techniques) that the students were engaged in; how students reflected on their visual practices; and barriers that impeded them from looking and seeing. Therefore the developmental stages of visual practices outlined in the first version of the personas were transformed into dimensions of visual engagement, which describe how students are:

1. Looking and seeing.
2. Reflecting on their work and/or themselves.

3. Impeded by barriers (such as negativity, being outside their comfort zone, perfectionism, motivation, and/or under confidence).

The following phases describe how the data above was distilled led to develop of a persona – the Cleaner:

Phase 1: The Learning Logs of the four students that were assigned characteristics of the Cleaner were analysed in turn, noting evidence for looking, seeing and reflecting. When evidence was found, the behaviour was named, a description was given and the place where it was found was recorded, then indicating whether the behaviour was looking or seeing, seeing or both and reflecting (*see* Tables 2.2 and 2.3).

Table 2.2: An investigation into how the Cleaner looks and sees through coding the Learning Log of the four students who were assigned this character

ID	Learning Log (LL)	Behaviour Name	Description	Place	Looking	Seeing
2	LL1 (2)	Trial and error	Colour gradient	Development	X	
2	LL1 (3)	Trial and error	Computer filters made up the images	Image's development	X	
4	LL2 (3)	Computer filter	Use computer filter to add to the image	Image's development	X	
4	LL2 (3)	Computer rendering	From a photography use Illustrator to create tools	Image's development	X	
4	LL2 (3)	Computer rendering	From a photography use Illustrator to create tools	Image's development	X	
2	LL1 (2)	Computer sketches	Traced images	Development	X	
2	LL1 (3)	Computer sketches	Traced images	Development	X	
1	LL1(1)	Looking: Copy and pasting	List what needed to be done	Research	X	
1	LL1(2)	Looking: Copy and pasting	Flyers and Fashion: Surface images use, scanning browsing, no evidence of understanding cultural or social viewpoints	Development	X	
1	LL2 (1)	Looking: Copy and pasting	Surface images use, scanning browsing, no evidence of understanding cultural or social viewpoints	Research concepts	X	

Table 2.3: An investigation into how the Cleaner reflects on their visual practices through coding the Learning Log of the four students that were assigned this character

ID	Learning Log	Behaviour Name	Description	Place
1	LL1	Planning time sheeting	This student listed what needed to be done for the week in the Reflect Section of the Learning Log	Overall
1	LL2	Planning time sheeting	This student listed what needed to be done for the week in the Reflect Section of the Learning Log	Overall
2	LL1	Planning time sheeting	This student listed what needed to be done for the week in the Reflect Section of the Learning Log	Overall
2	LL2	Planning time sheeting	This student listed what needed to be done for the week in the Reflect Section of the Learning Log	Overall
3	LL1	Planning time sheeting	This student listed what needed to be done for the week in the Reflect Section of the Learning Log	Overall
4	LL1	Planning time sheeting	This student listed what needed to be done for the week in the Reflect Section of the Learning Log	Overall
3	LL1	Unquestioning	Reflection on work and self was not present in the Learning Log. There was a lot of doing but not a lot of thinking	Overall
4	LL1	Unquestioning	Reflection on work and self was not present in the Learning Log. There was a lot of doing but not a lot of thinking	Overall

Phase 2: The identified behaviours in Table 2.1 and 2.2 were categorised into major and minor behaviours, noting the number of cases and where they occurred in the design process. During the categorisation, barriers that impeded seeing began to emerge in the notes column in Table 2.4.

Table 2.4: Categorising the major and minor behaviours of the students with characteristics of the Cleaner

Major behaviours	Looking	Seeing	Notes	Stage in design process
Looking: Copy and pasting	9 accounts		This student was not aware of what images were appropriate to their project	Research 7, Development 2
Planning time sheeting	7 accounts		Listed what they needed to do, how did not look and think about what they need to do	Overall
Looking: Inspiration	7 accounts		Lack prior knowledge or terms to understand what to look for, there is a need to encourage experimentation	Research 4, Development 1, CD 2
Subjective/critical application of concept	4 accounts		Looking	Image's Development 4
Unquestioning and subconscious the decision making	4 accounts		They did not see the need to change how they were working	Overall
Surface reflection	3 accounts		Reflected on project near the end of the project	Overall
One Idea	2 accounts		Lack of thinking	Overall 2
Trial and error	2 accounts		Student learnt through trial and error or playing	Development 1, Image Development 1
Develop images one after each over	1 account		Visual skills were developing through doing. However there was a lack of understanding of how all of the work fit together as a whole.	Image's Development 1
Taken photograph	1 account	1 account	Lack depth in looking	Development 1
Looking: Reading the visual	1 account		Lacked knowledge/terms	Development 1
Surface concept	1 account		Knowledge of how	Research 1

			to understand the concept	
Hand sketches	1 account	1 account	The student planned the layout of the website using the sketching activity	Development 1

Table 2.4: Categorising the major and minor behaviours of the students with characteristics of the Cleaner (continued)

Minor behaviours	Looking	Seeing	Notes	Stage in design process
Seeing: Inspiration		1 account	The student needed guidance on what to look for.	Development 1
Planning: Set guidelines and Site Map		1 account	The student needed guidance on what to look for.	Development 1
Seeing: Reading the visual		1 account	Seeing	Development 1

Phase 3: Table 2.5 shows an example of how the major and minor behaviours observed in the four students' Learning Log were grouped into key patterns of looking or seeing. Through this grouping, barriers that impeded seeing were identified, in the summary and implications column of Table 2.5.

Table 2.5: The key patterns of where the Cleaner looking and seeing

	Data	Behaviours	Summary	Implications
Looking	Learning Log	Looking: Copy and pasting, Trial and error, Inspiration. One Idea. Developed images one after each other. Surface concept	Looking was found when student was learning through trial and error	They need experiences to understand what is visually appropriate
	Learning Log	Hand sketches	Little or no sketching was found in the student's work	Lack of looking through sketching
Seeing	Learning Log	Observation of data	No evidence of seeing was found in the research stage in the student's work	Students need methods to help them see at the research stage.
	Learning Log	Surface reflection/ Unquestioning and subconscious decision making. Engagement Seeing: Inspiration planning: Set guidelines and Site Map. Seeing: Reading the visual	Students did not question, they needed to put themselves in other people's shoes, and this was only done in formal studio activity	Students need methods to help them to question and understand what they see.
	Learning Log	Looking: Reading the Visual	Students did not understand the terms used to review a visual image	Students need to understand the terms to help them to see, before they can apply seeing to their work.
	Learning Log	Planning Time Sheeting	Students planned their work, but did not see how to change, or see the need for change	Students need to value the process of self-reflection.

Phase 4: Phases 1-3 were repeated for the researcher's reflective observations and the semi-structured interviews conducted with the four students (that had been allocated to the cleaner category) following the first student project. For coding the interviews, the descriptions in Table 2.2 were replaced with the students' own words, and the questions which had prompted them. In particular, students were asked where they were looking and seeing during their work.

Phase 5: Phases 1-4 were repeated to investigate where students allocated the characters of Dr. Watson and Sherlock Holmes were looking and seeing, reflection and barriers impeding them from seeing. Based on the review of the data, a foundation document was created (*see* Table 2.6). At this point improvements were put into the foundation document by encouraging students to look at the next character to theirs explaining how improvements could be made to achieve this type of visual engagement.

Table 2.6: Foundation document

Cleaner	Dr. Watson	Sherlock Holmes
<p>Seeing</p> <ul style="list-style-type: none"> • Trial and error • Personal opinion • Imitates • Sees the need for change if made aware • What 	<p>Seeing</p> <ul style="list-style-type: none"> • Trial and error • Objective opinion based on evaluating external opinions • Seek external feedback • Reference other works within the discipline • Talking to users • What, When, How 	<p>Seeing</p> <ul style="list-style-type: none"> • Systematic process • Objective opinion based on evaluating external opinions and personal opinions • Looks beyond disciplinary knowledge to solve problems • Comparing work to others • Actively seeking feedback from others • Engaging intellectually with others • Why
<p>Reflection</p> <ul style="list-style-type: none"> • No reflection • Outward looking • External representation • Lack of self-awareness 	<p>Reflection</p> <ul style="list-style-type: none"> • Reflection on work • External representation through work • Self-awareness • Occasionally reflects 	<p>Reflection</p> <ul style="list-style-type: none"> • Reflection on work and self • Self-awareness • Ownership of learning • Constantly reflects
<p>Barriers</p> <ul style="list-style-type: none"> • Single minded • Does not question • Set way of doing things • Do not offer suggestions to others due to lack of analysis skills 	<p>Barriers</p> <ul style="list-style-type: none"> • Overly perfectionist • Fear of the unknown • Lacks confidence on issues outside his/her knowledge domain • Not always knowing when to apply the appropriate knowledge 	<p>Barriers</p> <ul style="list-style-type: none"> • Overly-reflective and not focused on doing • Analysis paralysis • Complacency
<p>Improvement</p> <ul style="list-style-type: none"> • Take responsibility for work • Reflect on work • Learn to recognise problems • Take time to reflect on problems 	<p>Improvement</p> <ul style="list-style-type: none"> • Take ownership of learning • Reflect on decisions and actions • Actively seeking to update knowledge • Learning to accept failure and using it to improve 	<p>Improvement</p> <ul style="list-style-type: none"> • Continue to question • Experimenting with new methods • Systematic reflection

<ul style="list-style-type: none"> • Analyse problems • Be inquisitive • Learn to seek guidance from others 	<ul style="list-style-type: none"> learning • Actively exploring beyond his/her knowledge domain • Be more experimental 	
--	--	--

Stage 2: Communication of a community's visual practices through a metaphor

Based on the foundation document and data gathered, a narrative account was created which included behaviours, a catchphrase and a quotation, in order to enable the students to see the personas as real people. Activities were also developed to describe the visual practices of each persona, stating the barriers to their looking and seeing, along with a clear identification of how to progress to become the next character. The second version of the Sherlock Holmes Personas (*see* Figure 2.10) conveyed the Cleaner's goals and changed her title to Mrs Hudson – the housekeeper, which was less derogatory. The Hound was also removed, as there was little data from which to create characteristics.

The Sherlock Holmes metaphor was used as a method of acquiring peer and tutor feedback. Each student had a feedback sheet to tick and comment upon, stating which Persona(s) most suited the way their peers had worked. Students were provided with the Sherlock Holmes Personas (*see* Figure 2.10) as a reference during this exercise. To develop a supportive environment for social interactions, students at the start of the design critique were first asked how they wanted feedback to be given. They then took turns to present their concepts, in a digital format, to the rest of the class. The second time this exercise was used, in the final presentation, students also presented their Learning Logs and interfaces. In order for the session to be led by the students, they were asked to give each other feedback before the tutor gave theirs.

<p>Mrs. Hudson</p>  <p>'Looking but not seeing'</p>	<p>Seeing:</p> <p>...She works hard through trial and error where decisions are based on personal opinion and knowledge.</p> <p>...She can see the need for change if this is pointed out to her.</p>	<p>Reflect:</p> <p>...She doesn't reflect on her work or herself, therefore her decision-making is not informed.</p> <p>Barriers which stop 'Seeing':</p> <p>... single minded does not seek to add to her knowledge pool.</p> <p>...unquestioning about her work, finds it difficult to offer suggestions to others.</p>	<p>To improve: She need to take responsibility for her work by:</p> <ol style="list-style-type: none"> 1. Reflecting regularly, questioning 'what', 'where' and 'how', to understand 'what is appropriate' for her audience. 2. Employing methods to question and update her knowledge during the: <ol style="list-style-type: none"> a. Research stage: b. Development stage: <p>Expand: Brainstorming and sketch work.</p> <p>Explore: Inspiration of all types, be magazines, artists, exhibitions, looking around and see alternatives.</p> <p>Analysis: Taking time to "see", and analyse what they are seeing.</p>
<p>Dr. Watson</p>  <p>'Looking and Seeing'</p>	<p>Seeing:</p> <p>...Knows he is capable of 'seeing' using trial and error and previous knowledge, but will realise there are other ways to see by:</p> <ul style="list-style-type: none"> -taking photographs -understanding his audience -sketching -new research material. <p>...He takes responsibility of his work by:</p> <ul style="list-style-type: none"> -questioning his work. -offering feedback to others, -wants to contribute. -being able to take direction and incorporate this into his practice. 	<p>Reflect:</p> <p>...He reflects on his work giving a good diagnosis, see his weaknesses. However he does not yet reflect on himself.</p> <p>Barriers which stop 'Seeing':</p> <p>...sometimes he does not know when and how to use his 'seeing' ability.</p> <p>...does not feel confident enough to look round the edged.</p> <p>...pursuit of perfection can stop him moving on and experimenting.</p>	<p>To improve: He needs to take ownership of his learning through:</p> <ol style="list-style-type: none"> 3. Reflecting on himself: <ol style="list-style-type: none"> a. To realise when it is necessary to take some time to 'think', when the stake are high. Asking: 'Why am I doing b. To acquire an understanding of any weakness in his learning style. Asking: '...Is there anything stopping 4. Developing as a self-directed learner by: <ol style="list-style-type: none"> a. Actively seeking to update his knowledge rather than waiting for information from others. b. Seeing that failure is a positive thing, and that failure early in a project can leads to a better outcome and learning experience. c. Being more adventurous, trying out new ideas or tools. Feeling brave enough to explore further, analyse what is unusual and what is not understood.
<p>Sherlock Holmes</p>  <p>'Knows when to look and when to see'</p>	<p>Seeing:</p> <p>...Applies himself to new challenges by:</p> <ul style="list-style-type: none"> -looking at the audience and brainstorming. -discover new knowledge to help him solve problems. -interested in looking beyond his peer group for insights. -comparing his work to others -actively seeking feedback from others. -still working by trial and error but guided by a systematic process, developed through past notes. <p>...However, he realises the importance of evaluating 'what is appropriate', before putting new process and data into practice.</p>	<p>Reflect:</p> <p>...takes ownership of his own learning by:</p> <ul style="list-style-type: none"> - questioning what he does not understand. -takes responsibility for his work. -Reflects upon problems actively, (regularly). -reflect on himself. <p>Barriers which stop 'Seeing':</p> <p>...There may be times when he over reflects, which stop him from solving the problem.</p>	<p>To improve: He must constantly transform his ability to see and learn through:</p> <ol style="list-style-type: none"> 5. Continuing to question, evolve, experiment and change 6. Apply reflection on a plan by: <ol style="list-style-type: none"> a. Acquiring an understanding of any weakness in his learning, taking this into account when planning. b. Developing some imaginative ways to plan, trying new methods of seeing'.

Figure 2.10: Sherlock Holmes Personas Version Two

Teaching-learning artefact seven: Learning Log Version Two

Stage in design process: All stages of the design process

Aim: To plan visual decision making, and describe improvements to their learning and visual practices.

Description: Each week students filled in three parts of the Learning Log: Plan, Do and Reflect which described the visual processes they were engaged in.

Teaching-learning artefact eight: de Bono's Six Thinking Hats

Stage in design process: Prototype

Aim: To enable students to provide a range of feedback to their peers and develop openness to feedback.

Description: Students were asked to place their work on the screens around the room, and were asked to go round the screens and use Post-Its[®] to give feedback from each of de Bono's Six Thinking Hats. Then students collected their Post-Its[®] with the feedback and a discussion took place around how they would use this advice.

2.3 Class Schedules

2.3.1 The First Student Project

Table 2.7: Class schedule for the first student project (studio sessions where the supporting module tutor was present, are shaded in grey)

Weeks	Studio sessions	Actions
Week 1	Studio session 1	Opening Lecture Introduction to the brief Students selected the music on which to base their images
	Studio session 2	Introduction to Learning Log Group exercise investigating visual language in music album, finding inspiration, and understanding the difference between the terms styling and theme
	Studio session 3	Concept development time
Week 2	Studio session 4	Concept presentations by the students
	Studio session 5	Illustrator and Adobe InDesign® Tutorials Talk through examples of Learning Logs
	Studio session 6	Critical Viewing Activity Students were given the Reading the Visual Activity to complete in their own time.
Week 3	Studio session 7	Students upload Learning Log onto e-learning portal Individual tutorials
	Studio session 8	Online Adobe Photoshop® Tutorials
	Studio session 9	Reading the Visual Activity was used as a method to give peer feedback Individual tutorials
Week 4	Studio session 10	Printing Techniques Lecture and Activity
	Studio session 11	Reading the Narrative Activity
	Studio session 12	CD layout lecture presented by the supporting module tutor Individual tutorials
Week 5		Final presentation The Sherlock Holmes Personas Version One was used as a method of peer and tutor assessment during the final presentation

2.3.2 The Second Student Project

Table 2.8: Class schedule for the second student project (studio sessions where the supporting module tutor was present, are shaded in grey)

Weeks	Studio sessions	Actions
Week 1	Studio session 1	Introduction to the design brief Publishing versus Promotional Activity
	Studio session 2	Concept Generation Activity Learning Log Simplification Activity – Stage 2
	Studio session 3	Concepts Presentation Learning Log Simplification Activity – Stage 4
Week 2	Studio session 4	Type Lecture by the supporting module tutor
	Studio session 5	Introduction to HyperText Markup Language (HTML) and Preparing Basic Graphics Learning Log Simplification – Stage 5
	Studio session 6	Individual tutorials
Week 3	Studio session 7	Students were given their own web space Individual tutorials HTML and Adobe Dreamweaver® tutorials Students uploaded there Learning Log onto Blackboard® (e-learning portal)
	Studio session 8	Individual tutorials Adobe Dreamweaver® tutorials
	Studio session 9	Development Presentation – Feedback Session Activity
Week 4	Studio session 10	Tutorial on HTML Emails Individual tutorials
	Studio session 11	de Bono's Six Thinking Hats Activity
	Studio session 12	Individual tutorials
Week 5		Final presentation The Sherlock Holmes Personas Version One was used as a method of peer and tutor assessment during the final presentation


2.3.3 The Third Student Project

Table 2.9: Class schedule for the third student project (studio sessions where the supporting module tutor was present, are shaded in grey)

Weeks	Studio sessions	Actions
Week 1	Studio session 1	Introduction to the brief Students discuss human computer interface issues based on the book and internet references provided
	Studio session 2	Innovation Lecture
	Studio session 3	Individual tutorials Group Brainstorm Activity
Week 2	Studio session 4	Student Brainstorm Activity Group Discussion of Philosophy Activity
	Studio session 5	Personas Activity Individual tutorials
	Studio session 6	Self-Evaluation Activity
Week 3	Studio session 7	Concept presentation The Sherlock Holmes Personas Version Two was used as a method of peer and tutor assessment during the concept presentation
	Studio session 8	Students sketch out each others concepts Individual tutorials
	Studio session 9	Individual tutorials
Week 4	Studio session 10	de Bono's Six Thinking Hats
	Studio session 11	Individual tutorials
	Studio session 12	Individual tutorials
Week 5		Final presentation The Sherlock Holmes Personas Version Two was used as a method of peer and tutor assessment during the final presentation

2.4 Student Project Briefs

2.4.1 The First Student Project



Level Four
Module DE781, Publishing Design 01
Part A

Project Title

The Visual Future of Music – Part A

Brief

This is part of a double module and is concerned with addressing the use of the 'visual'. The second part will be concerned more with the application of typography. The module is also concerned with students awareness of their own 'visual judgement and discrimination' and analysing and synthesising their own visual enquiry through a learning log.

A new record company called 'Yons' has asked you to create publishing material to support the launch of eight unknown artists that they have 'discovered' through myspace.com.

As part of a new publishing strategy, they want you to create a series of four still visual images that will first be used as projections when the artists are launched during a live event staged at the Sage, Gateshead next January. The original pieces should showcase your skills in image creation through a combination of, or exclusive use of; illustration, photography and typography. The images will document your progressive visual interpretation of the artists' music and identities which will remain a mystery to you too...

Once your images have been completed you will also be required to publish a limited edition Audio CD/DVD containing the tracks, the visual images and your explanations as well as general information provided by Yons.

Yons has given you a budget of £6,250 based on a London day rate of £500. Since this is record company's first publishing venture it is anxious to understand your creative process. To this end, they would like you to record and reflect on your on decision making process through the use of an online diary or 'learning log'.

Aims

To develop a general understanding of desktop publishing for both print and online media.

To develop a cultural and aesthetic awareness of image making, typography and document layout and their communication potential in relation to publishing.

To develop the creative and technical skills associated with image making, typography, layout and text in document design for both print and online media using computer technology - hardware and software

Research Aim:
To enable and encourage personal methods and techniques of visual understanding.

Learning Outcomes

Confidently and creatively use a computer and the associated hardware and software to produce documents for print and online media.

Understand and communicate designs using appropriate terminology for desktop publishing.

Be able to produce hard copy output of their work.

Develop an awareness of the importance and appropriateness of image making and layout both culturally and aesthetically.

Research Learning Outcome:
Be aware and able to make aesthetic judgements.

Work requirements

1. Learning Log (Design Document) digital	40%
2. 4 high resolution images - printed and digital	20%
3. Presentations Sheets (A3),	10%
4. CD/DVD packaging and separations for images - printed	30%

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Tutors Emma Jeffries
Version 1.2, 23.10.06

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Figure 2.11: Project brief in the first student project (Page 1)



Work schedule

Lesson 01
Opening lecture, briefing/Blackboard Introduction

Lesson 02
Image and Music

Lesson 03
Understanding your learning style

Lesson 04
Concept presentation

Lesson 05
Visual exercise 1/Artwork Creation

Lesson 06
Production Skills/Review Learning Logs

Lesson 07
Visual exercise 2/Artwork Creation - CD/DVD packaging

Lesson 08
Production Skills

Lesson 09
Artwork Creation/Packaging/Review Learning Logs

Lesson 10
Visual exercise 3/Artwork Creation/Packaging

Lesson 11
Presentation Techniques

Lesson 12
Class presentation/Review Learning Logs

Submission Date

Presentation of finished work to the group and tutors week 5

Dates to be confirmed.

Reference

Books:

Ways of Seeing: John Berger

Visual Communication; Image with Messages, Paul Lister

Reading Images: The Grammar of Visual design, Gunther Kress and Val Leeuwen

Visual Literacy in Communication: Designing for Development, Anna Zimmer, Fred Zimmer.

Problems solutions: Visual Thinking for Graphic Communicators, Ralph Wilde.

Visual Language: The Hidden Medium of Communication, Peter Bonnici.

Important Notes:


Full attendance is essential to get the most out of your learning.

Please note that no excuses will be accepted for lost work. Backup. Spelling will be taken into account so proof read all your work (and get someone else to.)

All flat work must be submitted in one piece, no bigger than an A2 portfolio. You must put all work submitted into some kind of container such as a portfolio. Any disks, prototypes, mock-ups etc. should be included in such a way as they do not become separated from flat work. All elements should be labelled clearly.

Figure 2.12: Project brief in first student project (Page 2)

2.4.2 The Second Student Project



Level Four
Module DE781, Publishing Design 01
Part B

Project Title

The Visual Future of Music – Part B

Brief

Following the launch of the bands at the Sage, Gateshead in January 2007, 'Yons' would like you to design online publishing material to support each band and its new fans. 'Yons' views the internet as a both a media and a distribution method for its artists and so want you to experiment by providing editorial and services that the band, the press and its fans can access and interact with.

Services may include the ability to download tracks, hear, read or see interviews, download 'press packs', view virtual galleries or set up weblogs/moblogs for both the band members and/or fans to use.

You have been asked to produce a basic 'live' online demo of your design. It is not anticipated that your design will have much technical functionality other than links between pages, however, it is expected that the design aesthetic (style) you created in part A will be further developed for use in part B.

In order for you to gain access to band information, the real identities of the 8 bands will be revealed...

Yons has to understand your creative process. To this end, they would like you to record and reflect on your on decision making process through the use of an 'learning log'.

Work requirements

1. Learning log	40%
(a) Learning log 1: "Research (moodboards) and concepts" (b) Learning log 2: "Visual development of online services" (c) Learning log 3: "Online press pack" (d) Learning log 4: "Final development"	
(Please work in the way you normally work, the learning log is just a tools to add your learning, this includes sketch work, etc. This is again in digital file (PDF file) and to be uploaded every Monday)	
2. Two presentation sheets printed (A3) and digital file (PDF file) containing:	10%
(a) Screen shots of "online services" (b) Screen shots of "online press pack"	
3. A 'live' demo of your online publishing work	50 %

Aims

To develop your communication potential in relation to publishing.

To develop the creative and technical skills associated with typography, layout and image

making text in document design for online media using computer technology -hardware and software.

Research Aim:

To enable and encourage personal methods and techniques of visual understanding.

Learning Outcomes

Confidently and creatively use a computer and the associated hardware an software to produce documents for online media.

Understand and communicate designs using appropriate terminology for desktop publishing.

Be able to produce hard copy output of their work.

Develop an awareness of the importance and appropriateness of image making and layout both culturally and aesthetically.

Research Learning Outcome:

Be aware and able to make aesthetic judgments.

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www.yons.com
www.northumbria.ac.uk/sd/academics/sod/

Tutors Emma Jeffariss
Version 1.1, 22.11.06

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Figure 2.13: Project brief in the second student project (Page 1)



Work schedule

Lesson 01 Opening lecture and briefing
Lesson 02 Concept workshop (for online elements)
Lesson 03 Concept crit
Lesson 04 An introduction to html and online publishing
Lesson 05 Preparing graphics for the web
Lesson 06 Introduction to Dreamweaver
Lesson 07 Intermediate Dreamweaver - Working with Behaviours
Lesson 08 Templates and Weblogs
Lesson 09 Development Crit
Lesson 10 HTML Emails
Lesson 11 Working with Media
Lesson 12 Troubleshooting tutorials

Submission Date

Presentation of finished work to the group and tutors week 5
Dates to be confirmed.

Reference

Books:

1. Jury, David - About face
2. Baines, Phil - Type & typography
3. Carter, R. - Working with computer type 4
4. Tschichold, Jan - The new typography :a handbook for modern designers
5. Kaye, Joyce Rutter - Design basics
6. Noble, Ian - Experimental layout
7. Shepter, Joe - Personal web sites : top designers push the boundaries...
8. Sinclair, Joseph - Typography on the Web.
9. Coupland, K. - Search :the graphics Web guide

Internet:

<http://www.bornmagazine.org>
<http://www.flicker.com>
<http://moblog.co.uk>
<http://www.blogger.com>
<http://www.fontfont.com>

Important Notes

Please note that no excuses will be accepted for lost work. Backup. Spelling will be taken into account so proof read all your work (and get someone else to.)

All flat work must be submitted in one piece, no bigger than an A2 portfolio. You must put all work submitted into some kind of container such as a portfolio. Any disks, prototypes, mock-ups etc. should be included in such a way, as they do not become separated from flat work. All elements should be labelled clearly.

Figure 2.14: Project brief in the second student project (Page 2)

2.4.3 The Third Student Project



Level Four
Module DE785, Innovation Design 02

Project Title

“Ways of seeing”: Innovative interfaces

Brief

This module is the second in a series about ‘innovation’, designed to introduce you to more conceptual thinking with relation, in this instance, to the human/computer graphical interface. You will investigate and apply the basic principles of interface design, to develop an interactive prototype (using Flash). The prototype should contain four or more interactive screens; you can select a part of an interface to explore e.g. a form, a menu. You will work in individually to produce this work.

You are being asked to design a human computer interface using the philosophy of a specific “way of seeing” pulled from a hat. John Bergers’ coined the expression ‘ways of seeing’ in his influential book *Ways of Seeing* (1972). He believes, “the way we see things is affected by what we know or what we believe”. In other ways, a way of “seeing” develops through personal experience in a social and cultural setting.

Every philosophical movement or “-ism” has its own value or “way of seeing”, based on it time of the movement- the historical, political, cultural and social setting. Through brainstorming, you will need to develop an understanding which surrounds your selected philosophy. Then you can then select “key quotes”, “keywords”, “phases” and “artists” from the movement with upon with to generate your concept.

Concepts development should be explained through a variety of visual imagery and some interactivity as well as verbal presentation.

You have been asked to record and reflect on your creative process in the form of a learning log. It may help you to focus on the strategies portrayed in the “Sherlock Holmes personas” at the planning stage in the log. The concepts and final presentation, which will be peer reviewed marked using the “Sherlock Holmes personas”. Overall this modular is designed for you to gain a new “way of seeing” and gain an alternative perspective on the world.

Work requirements

1. Learning log 40%
 Learning log 1: “Week 1”
 Learning log 2: “Week 2”
 Learning log 3: “Week 3”
 Learning log 4: “Week 4”
 (Please work in the way you normally work, the learning log is a tool to plan for a better learning experience. Please include sketch work etc. in a digital file (PDF) and upload every Monday.)
2. Two presentation sheets printed (A3) and digital file (PDF) 10%
3. Interactive Prototype (using Flash/html). 40%
4. Concept/Final Presentation 10%

Aims

To develop further conceptual thinking in relation to interactive products, primarily in experiential media.

To introduce students to the potential of human/computer graphical interface design.

To introduce students to the theories involved in the creation of user interfaces.

To make students aware of the fundamental techniques that are applied to communication orientated visual design.

Research Aim:

To enable and encourage personal methods and techniques of visual understanding.

Learning Outcomes

Develop concepts in terms of experiences for the user

Research and develop ideas for interactive products

Apply relevant theories to the design of practical projects

Apply technical requirements/specifications for a particular medium.

Research Learning Outcome:

Apply planning techniques to inform awareness of aesthetic judgments

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Tutors: Emma Jefferies
Version 1.0, 22.11.06

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Figure 2.15: Project brief in the third student project (Page 1)



Work schedule

Lesson 01 Briefing and "Interface Investigation"

Lesson 02 Your Finding from "Interface Investigation" First Exercise
Website Exercise - one websites - storyboarding/flow charts

Lesson 03 Upload Website Exercises review

Second Exercise: Exploring way of seeing: Brainstorm Exercises

Lesson 04 Place on wall and Brainstorm Exercises review

(You will be gain feedback and find out if you are a cleaner, Dr
Watson and Sherlock Holmes personas, this session requires the a
print out of learning log DE781 Part A and B)

Lesson 05 Develop Ideas

Lesson 06 Develop Ideas

Lesson 07 Presentation of Concepts and Feedback

Lesson 08 Develop Ideas

Lesson 09 Develop Ideas

Lesson 10 Prototype Development: "6 hats of Thinking"

Lesson 11 Prototype Development

Lesson 12 Prototype Development

Submission Date

Presentation of finished work to the group and tutors week 5

Dates to be confirmed.

Reference

Books:

1. Way of Seeings, John Berger
2. Visual Language: The Hidden Medium of Communication, Peter Bonnici.
3. The Art of Looking Sideways: Alan Fletcher
4. Designing the User Interface: Strategies for Effective Human-Computer Interaction, Ben Shneiderman, 2005
5. Interaction design: beyond human-computer interaction Jenny Preece,
6. Human computer interaction, Alan Dix
7. Designing interfaces Jenifer Tidwell.
8. Web sites : a step-by-step guide Avi Itzkovitch
9. Information architecture for designers: structuring websites for business success. Dijk, Peter

Internet:

www.useit.com
http://en.wikipedia.org/wiki/Philosophical_movement

Important Notes

Please note that no excuses will be accepted for lost work. Backup. Spelling will be taken into account so proof read all your work (and get someone else to.)

All flat work must be submitted in one piece, no bigger than an A2 portfolio. You must put all work submitted into some kind of container such as a portfolio. Any disks, prototypes, mock-ups etc. should be included in such a way, as they do not become separated from flat work. All elements should be labelled clearly.

Figure 2.16: Project brief in the third student project (Page 2)

2.5 Sample Interview Transcripts

2.5.1 An Example of a Student Transcript

The following full transcript is of a student interview conducted after the second student project was completed.

Student ID: STUDENT

Interviewer ID: RESEARCHER

RESEARCHER:

So, what was the difference in your experience of the last project, to the first?

STUDENT:

I understand a lot more what I was doing last time, so I managed to start earlier at it, than my first project. This time, because I knew what I was doing I was able to go out a lot earlier, and look at things that I wanted to include. Like go out and take photos of things that I wanted to include, I was able to do that a lot earlier this time. I think I was more organised, so I was able to like take in a lot more things from my Learning Log actually. I know my first one, I don't think it was as detailed. The last one, I think the project was a lot better, but I don't know if that's just because I enjoyed it a lot more than what I did the first one, but I think that was probably because I was [inaudible segment] like I know in the first one I wasn't very consistent with my imagery, and it took then a lot longer, because I was constantly thinking of, well I thought of 4 different ideas, I suppose, even though they were around 1 concept. Each image was completely different, I don't know, it may have been better to stick with the same style for each one. I just felt the last one was...I enjoyed it a lot more.

RESEARCHER:

What was your experience of the Learning Logs compared to the first, in the last project, compared to the first set of Learning Logs?

STUDENT:

I found it easier to flow through it a lot more when you narrowed it down to 3 boxes, I wasn't having to think...you know we had plan, do, reflect, it was like I could plan everything and speak about everything I was doing and what I was doing, and in reflect I could look at what I'd done and say what I wanted to do a lot easier than having to do the extra boxes. That helped me to get through a lot easier. It also helped me, I wasn't thinking [inaudible segment] I wasn't thinking "I need so much for this section, this section and this section", I was just [inaudible segment] a few categories and it was ?(all one thing)?. I planned it through my first and then [inaudible segment].

RESEARCHER:

OK. What is your current understanding of looking and seeing?

STUDENT:

I always get these mixed up. I know seeing is where you analyse things. I think I tend to look first, at the very beginning, and as I get into it I start to see a lot more because I know what I'm doing rather than, I think at first [inaudible segment] spend much time analysing stuff, I just look for inspiration and ideas, and then once I get them, once I've narrowed it down, then I start to see what I want. I still think I could understand it a little bit better than what I do. Bit I've ?(kind of got the knack of it now)?

RESEARCHER:

So what do you think seeing is? And what do you think looking is?

STUDENT:

This is where I get confused because I think if you look at something you're also seeing everything else around it as well. I always think back to when we were doing about, last time when we were thinking about a surgeon; when he's working on somebody, he's seeing things, like what he has to do, he's not just looking at what he's got to look at.

Researcher:

OK.

STUDENT:

I actually get more confused when I start talking about it. I know it in my head but I can't say it.

RESEARCHER:

OK. Can you look over...sorry. How do you think you've developed your looking and seeing in the last project? You can use your Learning Log to flick through.

STUDENT:

I think I was more open to seeing things than before. In the first project I was kind of like stuck, well not stuck, well stuck with the idea that I wanted, rather than just looking at everything, and if there were 3 [inaudible segment] I'd just choose 1 [inaudible segment]. I wouldn't like see it, what I was trying to know, I would just like trying to follow it through. This time I was seeing at all three and looking at pros and cons and then choose which one I thought [inaudible segment]

RESEARCHER:

Go on, explain it.

STUDENT:

I think I'm definitely able now to, I use like, I think I find ideas more [inaudible segment] than I did before. Once you started the Learning Logs, I'd never done anything like this before, so it was like new to researching things. But now, since we've done the first one to the second one, [inaudible segment] now I've got for the project I do now, I got like psychology now. Like before I wouldn't think twice that maybe it could turn into something else. So I think because of the

Learning Logs and the stages we go through, that has helped me to see more thing that I didn't see before. I suppose when I first [inaudible segment] when you did three screens, or whatever, I only did the one. But then people were like, it actually reminds me of the [inaudible segment] adverts, and I kind of used that to my advantage, rather than just criticism. Because I ended up including that part instead, and actually looking for the artists that did the commercials and stuff I suppose rather than thinking "oh, I've got to change it" I just tried to [inaudible segment] to my own work. I like the idea at the end where I went onto a message board and show people the actual final thing, as it was like [inaudible segment] people could see it developing from like step to step to step. I quite liked the feedback I got doing it that way. It gives people like more, I guess when you're developing, it was easier like, you need to be kind of there and stuff and I suppose because it wasn't finished, I like, to an extent I did know that, but then I didn't at the same time, but then when it was finished, it was cool to see the criticisms as well then. So, if I ever did it again I'd know where to [inaudible segment].

RESEARCHER:

OK. Where did the idea come from to prompt you to go to a forum and get feedback?

STUDENT:

I don't know really. I was doing it at home and I was going to ask my brother if he'd like write down some stuff that he thought. But he wasn't in at the time and I really wanted to get something in my Learning Log for it, because it was like my last part. And I was on the forum at the time so I just thought I'd see if anyone would quickly reply and they did.

RESEARCHER:

OK. [inaudible segment] of the six hats?

STUDENT:

I really enjoyed that, better than just walking around. Well, [inaudible segment] everyone just put their images up and wrote down what they liked. I thought it worked much better, it was more, you got everything that was good, and everything that could be better, what it needed. Rather than just one sticker [inaudible segment]. People had to categorise it down and analyse it properly, and [inaudible segment] what improvements were needed. I thought it was better for improving things. Because originally it was just like, I got one that said something like "eat a peach and get drunk when you're finished" or something like that. The first one I was like [inaudible segment]. But this time I thought it was much better. Even if [inaudible segment] it was worth it in the end.

RESEARCHER:

OK. What was your experience of being as to set guidelines at the crits, at the development crit before Christmas, and at the final presentation?

STUDENT:

Rather than just being completely negative, point out how you could improve it. That was like helpful because it wasn't completely putting people down so that they get rid of their ideas, but so they can like expand on it really like, just try and make it better.

RESEARCHER:

Which areas did you feel most and least confident in the last project?

STUDENT:

Probably the last Learning Log because I wasn't sure what to do for it. I think that I [inaudible segment] in the third one, that I only had like 2 pages in the end and one of them was basically me showing how I got to that point. I still don't think I understand, I know [inaudible segment], reflect on everything you've done. But I wasn't sure what support materials to include for that. I suppose because we had the previous project it made the Learning Log a lot easier because we already had a lot of background stuff to include with it. So everything I'd already done, like the website, the original band's website I'd looked at, cause I'd use the [inaudible segment] package, it was easy to come into this one. It was easier than just starting from scratch. As I say, I personally really really enjoyed the last project, so I find it hard to say what I thought was the least enjoyable about it. Maybe publishing, maybe looking for ideas was one of the harder parts because a lot of the time on the websites, a lot of it was promotion, so out of say 10 websites, maybe 7 were purely promotion. So when I looked a lot of people...some of the publishing they've used was more [inaudible segment] MySpace, they had some information there for what they were using.

RESEARCHER:

OK. Now talk me through the process of how you created your work using the Learning Log.

STUDENT:

It was just like a diary really. It was just like, I don't know. That's how the problem was to start with, cause we weren't classing it as a website, I don't know what we were classing it as but I know you said it was like online publishing, but

RESEARCHER:

Just don't think about it as a website.

STUDENT:

Yeah. That's what I tried to do, so it was a bit more like an interactive slideshow maybe. It wasn't like standard navigation [inaudible segment]. There was navigation, but [inaudible segment]. I think I used it more as a notebook and a diary. So everything I used, all the pictures I used I like included them here, and everything I used I tried to write down and reference so that I wouldn't forget. But it did help quite a lot, like taking certain specific words that people had used...I do think that if I hadn't have wrote a lot of it down I would have forgot. All the inspiration I got from the images and stuff [inaudible segment] I could see that once I put them all together, I could see which ones would really work and which ones wouldn't. There were a few pictures I took that I thought would have worked quite well, but they wouldn't have been, like it wouldn't have flowed

together. Cause I wanted each page to kind of interlink to the next one. I think there was only one, I think it was from the shop, where you couldn't actually go straight directly to it. But I wanted that included as well. But there was other like pictures of like streets and stuff that I would have liked to have included but I wouldn't have been able to merge them together. So I guess everything was just easier to pick out, like a map kind of thing. So that was how I got the idea of going through [inaudible segment] you clicked it and you go to a different section, but I preferred the way it just went from page to page to page to page. I think the fact that I already had the CD packaging meant that I didn't really have to develop my ideas that much more. Cause I knew that was the kind of direction I wanted to go in. It was basically when I started playing round with the images and using gradients, that's when I knew how I wanted everything to look, and I developed the style from that.

RESEARCHER:

Looking back on the last project, how do you feel you need to improve your looking and seeing?

STUDENT:

Maybe be more open, think outside the box even more. I supposed cause you wanted to have it like a city, you restricted what I was looking for, and then when I was seeing it, it had just been [inaudible segment] to a city. I could have maybe like looked at more websites that were city based but maybe not necessarily like a city. There was that one that you showed me where it was just like loads of circles, flowing together, which was supposed to be a city somehow. But yeah, I definitely think looking further away from what I'm just doing would have helped. Studying a lot more academic work maybe, a lot more books to look at, yeah, I looked at quite a few books for this one, but [inaudible segment]. But for the last one there were only 1 or 2 books that were really like relevant to what I was doing, so I spent more time looking for actual research, well not research, but actual academic stuff. I could possibly improve with things like that.

RESEARCHER:

How would you explain the Sherlock Holmes Personas to someone new on the course?

STUDENT:

The cleaner basically just does things because she likes it. The example of she picks the flowers because she likes them. So with the cleaner she would just go into a shop [inaudible segment] canvas, and she goes "oh I like that" so she buys it, rather than looking for more meaning to it. Whereas Dr Watson would look at the canvas and try and understand why they've done it. He would be the one that would think about it and not necessarily just buy it because he likes it but whether [inaudible segment] if he took it home it would go with the rest of his surroundings. And then I suppose Sherlock Holmes would probably look even more into it, like the price and stuff, I don't know, like really analyse it and stuff. Say oh, well it's poor work, but it could improve by doing this to it, maybe even buying, doing that to it...I don't know! I'd just say he'd try and analyse every inch of it that he could and really try and understand why it's been done the way it

has been. Look for the improvements and do the improvements, whereas Dr Watson would understand what needs to be done, but wouldn't really like want to, well wouldn't want to, but wouldn't really make the improvements. Whereas the cleaner is basically, "I like that and I'll go with it" kind of thing.

RESEARCHER:

When would you tell them when they are used?

STUDENT:

Basically when, how you were doing, instead of like oh, you're at a 2:1, you can understand why you're there. Like if you're a Dr Watson you can see that little bit more that's you needed to get you a bit further. If you are a Sherlock Holmes then you can see what you are doing and continue that over into the next project. Like you look at the characteristics and say "yeah, I do that" so if you have the characteristics there you can just say "I need to go back at that and look at that more"

RESEARCHER:

OK. Which character do you think you portrayed in the last work and why?

STUDENT:

Probably a bit of Dr Watson, a bit of Sherlock Holmes maybe. I think last time I definitely go further into, like cause I knew what I wanted to do, I understood a lot earlier on what my goal was. But I still think there was room for analysing things a lot more and that would help me produce a better piece of work, but at the same time I think there were sections where I did do that and sections where I didn't do that. I think earlier on it was Dr Watson, but later on I think it developed more into Sherlock Holmes because the more I got into it I started thinking "oh that would be cool if..." and I started questioning why I did that. When I was reading over [inaudible segment] questions, when we had people look over your work and ask "Why did you do this?" I'd look at my work and ask "Why did I do that?". That's reflected in the Learning Log.

RESEARCHER:

Which feedback form was this?

STUDENT:

It wasn't a form, I think it was like, I'd typed all the post-it notes up and printed them off as a sheet to like question.

RESEARCHER:

OK. Do you think understanding about the Sherlock Holmes characters will affect the way you work in the future?

STUDENT:

I think it depends. Personally I think it depends on what we're asked to do, like if we're asked to do a design document, it's a lot more laid back and you just show the work you've been doing. I don't think it's as much, not pressured, but I don't think there's as much, like because we've done the first Learning Log, now we know what we need to include. Cause we had the three boxes, but

we won't have that next time. So if you do a box design, like I found the very first one I did, [inaudible segment] the photographs I took, the sketches I did. It wasn't really analysing why I done it or anything, it was basically just [inaudible segment]. I definitely want to try and continue the process of the Learning Log, so the three stages. Whether I'll do that constantly all the way through, I know I will start reflecting on things and asking why I'm doing things. For [tutor's name has been removed] at the moment, I've even started using personas for companies and things. Which I wouldn't have had an idea about before. But I think it depends...now that I've started doing Learning Logs on this course, hopefully I'll adapt it to that. It's the only way I know so hopefully I'll continue to adapt to that way. I know Rich was doing it last year, I know he much prefers doing like a design document and working through it that way, cause that's what he knows from last year, but I think this is just what I know, I'll probably just continue that all the way through.

RESEARCHER:

OK.

STUDENT:

Cause actually I like to look back and see why I've done things as well. Like if I leave my project for a while and go back to it and go "oh, I did that for some reason", and there's like evidence for it as well. Yeah, I do think that understanding the characters will help, like say in a year's time I probably won't be aware of them because I haven't like, but hopefully like at the back of my mind, in 12 months' time, I'll have the characters there, hopefully I'd still be able to pick out points and [inaudible segment] because that's how I know how to do the work, because of this.

RESEARCHER:

OK. What was your experience of using the characters in the crit?

STUDENT:

Sometimes I wasn't sure where to go with it. I know once or twice, like when we did the presentations, I like ticked in the middle of the box, cause I just wasn't

RESEARCHER:

Sure

STUDENT:

Yeah, I think at times you can be showing characteristics of both. I think like sometimes you can be like Dr Watson and analyse stuff but doesn't go through with it but Sherlock Holmes does, in places. So I think that was that point that I was like [inaudible segment] so I was like where do I draw the line? It was helpful to see how other people's work was and to see where they're at and to reflect back on mine as well to see how people work in similar, excuse me, and to see where...I don't know how to explain it. Just to see how they're working and to see how I'm working. See how other people get their thoughts and ideas and things like that. Just to see how people get their

ideas and look back at my ideas and see if we've both been developing them along the same lines. To which characteristics you explain, to which character you'll go on to.

RESEARCHER:

Can you think of any way the characters can develop your ability?

STUDENT:

I don't know. I think they have already developed my ability. I think knowing what the characteristics are of each one helps, cause I know that obviously I wanted to do the best I could so I would look at Sherlock Holmes and start thinking that's what I needed, so I would try and work to that. So I think that has developed my ability to find inspiration and analyse things a lot more, rather than just look something over and think, oh that could be improved, actually doing something about it and going ahead and improving it. I first did that with [inaudible segment] I started just doing it, but then at the end it just wasn't [inaudible segment] because my word developed constantly that the original [inaudible segment] go back and do that at the end and re-do it.

RESEARCHER:

OK.

STUDENT:

And although it didn't take nearly as long, the outcome was better cause I was able to, rather than just leave it cause I'd spent so long doing it, I just did something about it and made the improvement.

RESEARCHER:

OK. From your experience now, if you were to do this *whole* thing again, where should the Learning Log be introduced and where should the characters be introduced as well?

STUDENT:

I don't know. Maybe possibly the characters first, and then maybe introduce the Learning Log as a diary for each character or something.

RESEARCHER:

OK.

STUDENT:

This is like, if you choose a character, well not choose a character, but just like if you set out to do a journal or something for Sherlock Holmes, then you have certain points, this is what you have to fulfil to get to each point. So maybe if that was like from page something, if it was like an introduction to Sherlock Holmes, then you could see what's required to go through. But I think, yeah, I think we got introduced to them in the presentation for the first time did we?

RESEARCHER:

Yeah.

STUDENT:

I think if we were introduced to them probably a bit earlier on, like half way through, or maybe even before then, we'd have known like, cause I know people are always going to try and get the highest mark they can So if you say that you need this to get the highest mark, then [inaudible segment]. You just adapt to it and you constantly work to that level.

RESEARCHER:

When you introduce the characters, would you get students, would you get everyone to write out the characteristics and how they would go about the design process, as we did?

STUDENT:

I like the characteristics that they each have at the moment. I still struggle, well not struggle, but sometimes it's hard to decide if you've done enough to class it as Sherlock or if you haven't [inaudible segment] Cause I think you can like analyse something and then do something about it, but to what extent? I don't know. I think the characteristics as they are are probably fine.

RESEARCHER:

It seems to me that everyone's took to the characters much easier than they took to the Learning Log. Can you describe...?

STUDENT:

Yeah. Basically because you just have a picture, and by saying the name of each one you kind of understand that [inaudible segment]. How they relate to what we're doing, like when we had the [inaudible segment], basically [inaudible segment] so you'd understand the level of work that each one was. It was like, I'm not sure if you read that cleaner document where [inaudible segment]. But it was just like I know there was information in it about each one, but there were points for improvements. Just having those 3 or 4 bullet points just helped to define which is which. Just from them points. So now, I would just look at them and be like "I need to do that, I need to do that". I think at first, because we'd done, we didn't [inaudible segment], but then we did do one for the tutor, and I know it's marked on the concept, rather than the actual so it has been a lot more theory based as well. I think that's why it was at first, because everyone was expecting it to be a lot more design first. And we ended up with a lot more like research and I don't know, I thought we'd be learning, we'd learn to use the tools a lot more than what we did. But if you come onto this course, then surely you must know in advance and like prepare yourself for it and learn that. So I think that maybe, once we'd got the boxes down to 3 it was a lot more enjoyable because I [inaudible segment] he absolutely loves Learning Logs now he's like obsessed with them. I know that first when I was talking to him, when I was first getting to know him, he was saying, "Oh, I wish I was in fine art now, because this wasn't really what I was expecting". I don't really know why that is, but I know it's got a lot more enjoyable than it was at first. I think the further we got on with it, because obviously you'd just introduced it so it was still like new, and obviously anything new you have to work it out and get like all the bugs out and stuff and fix that. So yeah there were some bugs to start with but I think now it's, we can relate to it more. I think people

prefer working with the design document, but as we have a cover sheet for each section, especially with this type of case, it's just for putting a title on and we're just using them one for each week, it's easier just to use your work [inaudible segment] just reflect on your work and put it in. So anything I do now I just put in with the design document, I wouldn't think twice. I probably wouldn't have included, because I didn't have to basically, but now I think it's relevant so I include everything, even like how you work out how you're going to plan stuff for the following week. I included that now. I still think that the Learning Log...without the characters wouldn't be as relevant. I think people would fulfil each requirement, not requirement, the characteristics, without the Learning Log, because me, I can't just read something and take it in, and it's the same with my work. If I'm doing something I'd need to actually write it down and then have it there [inaudible segment] forget why I would be doing things the way I am. I just think the characters are a lot easier to understand, they're straight to the point with what you're working with.

RESEARCHER:

OK. Which parts of the Learning Log are now important to you?

STUDENT:

Well the least important would be the fourth section. Probably second and third really cause that's when all my ideas come together and I like to be hands on with stuff and actually putting things together and creating things. I suppose the second one cause that's when the ideas start to come together. And my options are before it. I like to see my things, I like to look back and think, that's how I got to that. So I think the third one particularly for me because there I decided that I needed to make changes with the third one. So [inaudible segment] third Learning Log back over and [inaudible segment] time and space of the third one. But the second one's still helpful because all my ideas, well not *all* my ideas, but because the majority of them are in concepts, I find it much easier when all my ideas are just there, I don't know. I'm actually repeating myself now but.

RESEARCHER:

That's fine.

STUDENT:

But, the reflection part is important to me also because I tend to look at what I should have done and what I need to do. Then when I start the next one to plan, I always look back at the reflection previously and that helps me plan for the next Learning Log. So I know where I'm at and where I need to get to.

RESEARCHER:

Do you think everyone looks back at their plan before going onto the next one?

STUDENT:

I don't know. I don't think you really cannot look back but I think that sometimes it's quite easy just to get sidetracked and not necessarily do what you set out to do. I think with the presentations, it's easier to see then, what I haven't actually followed through with my usual attention. I think in

the last project that helped me to be a lot more patient with the things I do rather than...and also plan my time more better. Like [inaudible segment] I need to do this, I need as much time as possible, so I'd start as early as possible. It's made me a lot more patient as a person because I hadn't created images like that before it took such a long time, but because I was in...liking what I was seeing I was wanting to do more and more and more. I knew that if I wanted more, I had to sit for longer. And the more I did that the more I accepted the fact that this is what I've got to do [inaudible segment]. That changed how I work now, I'm just generally able to sit a lot longer and [inaudible segment] just understand and see other people's work now and if I showed my girlfriend something she'd be like "oh that's cool", but yeah, but I'm like, you don't understand how long that must have took somebody to do and the effort it's actually taken for somebody to produce. [inaudible segment] they must have like really pushed the boat out with that.

RESEARCHER:

OK. That's it, thank you.

END OF INTERVIEW

2.5.2 An Example of a Tutor Interview Transcript

The following transcript is from an interview conducted with a supporting module tutor after the third student project was completed.

Participant ID: TUTOR

Interviewer ID: RESEARCHER

RESEARCHER:

What was your experience of the innovation project?

TUTOR:

Quite an eye-opener, I have say. As...I mean, as someone who's done... like, a year myself and a Masters, I, I think...I learned quite a lot. And...I had a fantastic experience in terms of... not only learning how to look at students and how to identify...key aspects about them and what's preventing them from...from (getting on?) with their work. I think, like... you see it and you think 'oh this makes such sense' and obviously you can't help but apply it to yourself. So I've really found that that's really, really stuck with me. I, honestly...I'm doing...it's the same as when I did reflective practice, which is what this is. Is...for like a good period afterwards, nearly everything that you do, you're... you're kind of applying it to it. Whether it's like...house management, or you know, your actual design work, so it's...it's really stuck. So I've had a really good experience with it. I've absolutely loved it. It's been a really eye-opener, and...and something that I...I kind of think I want to explore more for myself. But in terms of (?my reading?) the students, I can... I think it's been a great experience all around, to be quite honest. Even if, even if there's been some

negativity from them. It's like, well, you don't always like something that's really good for you...you don't always like it, do you? Do you know what I mean? It's like...

RESEARCHER:

Can you describe my teaching style?

TUTOR:

Very organized, and everyone was... because of that everyone was really focused, I think. You know, you do...I find sometimes because I'm a little bit more...too relaxed, sometimes...sometimes when you really need to get people, like, on it, they're not that...focused. So I think it...it was...you certainly had an awful lot of stuff there. I really liked how you had all the stuff on the walls, and people would kind of sit around, with the whole 'isms' and stuff. And it really just seemed to bring their attention back to...what you were doing. (inaudible) Just on that basis I'd say you were pretty structured. But then, you know, I kind of think that a lot of this...had to be...but I think that maybe for some of them it was just a bit, like...I mean, as we saw, like, this is the thing with them at that... at that age. Their personalities are quite sensitive and we've seen in the same way that kind of... straight down the line with [tutor's name has been removed] as well. They don't react...some of them, that well to it. I kind of felt like the straggler, like "wait!". But what you were teaching them, you had to be like that because...it's not, you know, like it's all... It's not like it's a kind of brief, where you're like here, just... just knock up a work page and, you know, that's the end of it, you know what I mean? And we'll go talk about design a bit. It's...what you're delivering had to be structured as far as I could see.

RESEARCHER:

How do you feel that the students responded to the teaching style and the structure of the crit as well?

TUTOR:

The crit I think was great, and this is where your structured style is, is fantastic. I mean, it really works very well in that. They...were shocked at... at how well they delivered...feedback and how there was no (inaudible). I mean, your structure was: right, tell me how you want feedback to be given, right, I want it like this, I want it like this, and they just gave it. And I was really quite surprised... at how well that worked. And I think... your teaching style really implemented that, because when I think about comparing it with the third years. Because I took what you had done and applied it to the third years. We had a prototype presentation, and...the whole teaching style in the third year is very (?hey guys!?), you know, very, very chill. And I'm the bad cop, you see. [tutor's name has been removed] is the good cop and I'm the bad cop. [tutor's name has been removed] the super bad cop but...we did the presentations, and I really liked your feedback and crit straight afterwards, because I think it's, it's excellent. And it was very new to them and, but I kind of made them do it. But because... I had to be like, quite structured and quite on it to get them to do it. I think it... it's your structured delivery that makes them do it without question. Whereas a

few of them were sort of still struggling with it in the... you know, just at last week. They were moaning about it and like, well I don't know what to say, and it was just like 'well, look, you know, you need to be doing this more'. So just in terms of a comparison...your... it worked better you, with the first years. I think they gave it and they received it much better in comparison to the third years. And I tried to do with the third years...but it needs more structure to it, basically.

RESEARCHER:

Do you feel by being over-structured that it left them...not room to breathe?

TUTOR:

Yes, I do, I do. Because... I mean, this is the thing, it's getting the balance right, isn't it? I mean, you can give them too much room to breathe and they'll just sort of...slouch back and do nothing, and, you know...or not really get anywhere. But... I think a few of them that were kind of a bit lost...they were a bit like I don't get, I don't get... this, I'm not getting this structure, I'm not understanding it. And because they didn't understand it, and maybe (?they didn't have enough room?) to breathe, they... were slightly adrift. But kind of only some of them. But I think, if I'm honest, that's maybe is where the benefit of the (?tool?) book kind of work, is the ones that needed a little bit more of hand-holding, you know, if I spent a bit more time with them, it almost sort of sealed the bargain (cut off).

RESEARCHER:

How do you find that they felt they responded to applying a philosophy to an interface?

TUTOR:

Well, some of them got lost on the ism. Some of them got well into the ism. But that's just par for the course for anyone when you're explaining a philosophy. But what I think was really good about it for ninety...ninety eight percent, I would say (inaudible), it got them into the concept of the... feel of the interface, rather than relying on (?knocking?) with the interface. If it had just been an interface brief, you know...an HCI, and it would it been very, very focused on the interface. I think the ism kind of...took them away from the nuts and the bolts of it, and it really got them thinking about getting your head into... who this is for, what it's supposed to be conveying, which is a, I'm sure kind of a (inaudible), if you were, say, going to a website for like (?Saga?) or something, you've got to get your head in as a...being an almost person, and this. So I think it worked really well in, in...just it was almost like a (?sucker punch?) distraction technique. It really got them in, into...well away from thinking about just the interface, and more into what, what it was they were trying to convey, which I think is a really important...element of design and research thing, as well. Obviously they had to go and do research. That really focused them on, on it, and through that research they came out with an awful lot more ideas, you know. Any ideas they had just completely developed and changed.

RESEARCHER:

Do you feel that the outcomes of the, of this project were met?

TUTOR:

For most of them, yeah, because it was such a...they really did get into conceptual thinking. There was, there was a handful that didn't but, you know... they were either the ones that didn't come in...Three, five, five at the most, I reckon, if I had to, didn't work. But that's because of issues we have identified using the Dr. Holmes, the Sherlock Holmes thing. So as a conceptual brief, yeah I think it was really, I think it was pretty good.

RESEARCHER:

Did you notice any difference in the dynamics between Group A compared to Group B?

TUTOR:

Group A seemed a bit more efficient and a bit more on it, if I'm getting the names right, I mean, Group B... Yeah, dynamics, I mean if...it's like, you get one, you get a dissenter in the ranks and it, it (?explodes?) really. They were funny, they were funny. I can't think of the dynamics, but...

RESEARCHER:

But say, which was one was more extroverted as a group, which was more introverted, which were.. (cut off)

TUTOR:

Group A was a nightmare. I would actually say Group A were...Group A were better. I think Group B...Group A, I mean even though there were some, kind of, complainers and stuff, I do think that there was enough people in Group A that were working hard to kind of lead the way, if you know what I mean. And at least there were some others that were like, OK, I'm the only one that's not really...Group B from what I can gather, there was definitely a kind of like a lackadaisical approach.

RESEARCHER:

Which students did you observe not engaging? So that the Learning Log, the characters...?

TUTOR:

There's people who haven't engaged on different levels. Kind of [student's name has been removed] was one... but he was sort of doing his rebellious, like, this isn't working the right way, and I'm not getting it, and I'm, so I'm going to stick my fingers in my ears and I'm not having. But actually, he still got something out of it, when he actually did what, when he started doing what was asked of him. [student's name has been removed] I don't think... I don't think engaged with it how he could have done. He seems just a little bit...he's distanced, he kind of distanced himself from it. As if it's like, I'm better than this, I'm above this, I don't need to do this. I mean, to a degree, [student's name has been removed] didn't engage with it. I kind of had to hold her hand. And the, like, the only way I could get her from...that point, which is just where she's totally frozen is virtually to hold her and say look what do you want to do? But (cut off)... Walk her through it bit by bit, and then eventually, when she got over the [student's name has been removed] bit of doing it, she then went and did a load of stuff, just afterward (?went back?) and looked it, by

the end. But I mean, she did her Learning Logs, though, didn't she? But I, you know... Did her Learning Logs kind of say anything about the actual interface, like her.... ability to move on?

RESEARCHER:

It did, yeah, she was like...(crosstalk)

TUTOR:

Great, OK. I don't know, I mean, I'm thinking most people who looked at the Learning Logs have made some progress to a degree... whether it was even just starting to look at the way that they work, rather than themselves, at least there's been some progress. I mean, yeah, you know, even with the likes of kind of... Adam, the people, you know you've been looking at the logs, right, where we think oh God, what have we done. But actually looking at the end of it, it may not be documented, but I think even there's a good few of them that are still, right, I've got something out of this. So they have engaged with it in one way or another. That's why the people who really spring to mind are people like [student's name has been removed]. I mean, and you I think even [student's name has been removed] got something out of it, at the end... even if he was still kicking off, because.... He was all being like, all blustery at the final presentation and stuff. But at the very end of it, he was still like yeah, yeah and I realised I need to do that, and I need to do that and I need to do that. And it was like, right, yeah.

RESEARCHER:

Do you think that was based on the characters or do you think it was based on... because he didn't do the Learning Log.

TUTOR:

It came out through the characters, it came out through the feedback. The presentations and the feedback where we sat and discussed with him and other people were talking about his work. But that came from the characters, because everything that we said, we based on the characters. I could, I just, you know got with it so quickly because I could totally identify features of your characters in the students. So it just made feedback to him really, really easy, and he identified it in himself, even though he first sort of denied it. But he, it worked for him because he could identify it so freely in everybody else, but I'm not having it with myself but then, at the very end he just rattled it off about himself, and I was like... it was almost like he'd resigned himself, oh alright, you're right. Do you know what I mean? So, I think they were the kind of big ones, I mean...

RESEARCHER:

Which students do you observe engaging with in pedagogy?

TUTOR:

[Student's name has been removed] (inaudible). So are we talking more about, I think, I didn't, I (?didn't guess?) the characters. I think the characters were a really good way of being... almost what it says on the tin, this is where you are. So whether they get, whether they get the Learning Log or not, I'm not... obviously some of them still need to get to grips with that, but the characters I

want them to get a lot more. So [student's name has been removed] ... Yes, I think [student's name has been removed] gets the characters, got the characters. [student's name has been removed] can't, yeah. Yeah, bless him, he does. There was a few things in feedback. He, he realized that there's bits of Mrs Hudson about himself, and he sort of sees Dr Watson, and, and he's mentioned a couple of things. It's nice because it gives him a bit of like...you know, like form so they don't take it so personally, you know what I mean. It's like oh I'm a bit of Mrs Hudson, but Dr Watson's quite nice, and I'm a bit like him aren't I? So it makes it a much more... friendly way, I think, of being objective about himself. Apart from [student's name has been removed], [student's name has been removed], I can't absolutely...but he's very, he can think, he's (?creative?). Oh, [student's name has been removed], I think, I think [student's name has been removed] got quite a bit, people who are really quiet though, (?) just for looking at himself. [student's name has been removed] is, he aspires to be like Sherlock Holmes, don't they, but he's kind you know, recognized what his Dr Watson things are and...I'm really thinking most people, most people have got it. I mean, even the likes of [student's name has been removed], who, like, say, first presentations it was like Oh my God, you know, these three... wow, I mean, she really did. Because, she, I mean...her work was awful. (?) Her work was absolutely awful and she went away and was told in no uncertain terms, look this is where you're at, you're having to do this, this and this, this is your character. Yeah, she, she's quite another, a good example of someone who's like right OK, I need to do this more, I need to do that more, and she really did kind of move into the Dr Watson a bit. I mean, she's a good example. Honestly, I think most people got it. Obviously [student's name has been removed], who's the absolute... person who got it straight away, but you know, that's evident in his work. You can just see how amazing his work is and how he's looked at... how he's working, and that's resolved, process. I mean, his Learning Logs as well, the process in it, when he was really looking at how he was working...analyzed that he, he was making a big mistake, completely changed it, and then that just solved... his actual work issue. When he just, when he changed himself, it changed the problem in his work, so yeah, I mean, like totally brilliant. (cut off)

RESEARCHER:

What value, if any, has the pedagogy brought to the students?

TUTOR:

To all of them, absolutely all of them, they can, the feedback. They can give and take feedback, which is, which is great. They're freely able to receive advice, they're freely able to...in the advice, in the feedback, whether it's public domain, or whether it's, you know, the hand-written feedback logs... they're really quite cool about accepting certain characteristics about themselves. You know, like, OK, I'm up there on that, I'm down there on that, and I think, I think that's absolutely brilliant. I think... I think for all of them, that's really good. The characters, they can see negative traits about their work, how their working, and they can see positive traits about how they're working, and they can easily see you need to do this to just get a little bit further on. So I think, I

think that comes out more in the characters and in the actual physical feedback. The Learning Logs, for those who were just looking at the work they're doing, at least it's progress and they are...they are at least analyzing their work, which is a step in the right direction. I mean, even getting them to analyze their work is...is I think, a good thing because... alright they may be missing the point of actual research, analyzing yourself. But analyzing their work they've come up with some interesting... oh, I've done that wrong, I've done that wrong. But the ones who analyze themselves...I mean, well, (?it's different?) isn't it, in how that's really benefited them. So I think it's benefited all of them for level or another. The only people...I'm not sure, it's not benefited are those who's not engaged with it in any way. And those are the ones who didn't come in, or the ones who were like slightly apart from it. But even then, I think some of the things that were said about other students, whether it was things like look, take ownership of your work, or you're creating a barrier, or you need to kind of do this, or you need to brainstorm more, I think there's elements that rubbed off. I mean, even [student's name has been removed], who didn't.... appear to get it, he totally knows that he needed to...at the end of it, he was like, yeah I should have done more of this, and I should have maybe done more brainstorming, I should have done more of...you know, certain elements of it. So they've all got something from it, from one degree or another. Maybe it wasn't exactly what you thought they'd get from it, but they all got something from it.

RESEARCHER:

How would you describe my research to another tutor?

TUTOR:

[tutor's name has been removed] was just...absolutely fantastic in terms of having a clear understanding of the students. The characters makes it really, really easy to identify where the student's and, you know... what problems they've got and where they need to get to move on. It just gave, I think I was saying to [tutor's name has been removed], as I was saying to you, it gave me like a greater understanding of the students and where they're at. The characters really... because they've been well-researched, very clearly pinpoint certain students. It kind of puts them in a bracket. I mean, obviously not dead-set pigeon holes, because there's, there's, it kind of shoots off into other elements of each character. But it fit, when I was explaining to [tutor's name has been removed], I was just saying, like, this thing that would make [tutor's name has been removed] struggle with feedback, and we were saying about trying to have, like, certain statements that apply to certain students, I was saying [tutor's name has been removed], she's, she's done it. That's what [researcher's name has been removed] done. She's got these characters and she's got these drag-and-drop statements and it applies to the students. And obviously it doesn't have to be just the one character, you can have a bit of one character and a bit of another character. Basically she's kind of done what we were talking about. So I think, think the characters really, I think being able to identify the characters and being able to identify the students, their characteristics, their traits. They get a point in being able to identify where, what they need to do to move forward. So in terms in

being able to understand the students more, being able to help them more, it, it's so much better for that.

RESEARCHER:

But what about, have you explained the Learning Logs to any of the, any of the tutors (inaudible)?

TUTOR:

No, I haven't. I haven't. I think maybe I might have had a little bit of conversation with [tutor's name has been removed] about it, but we never really got to it, and I wish I had because... I don't know why, but unfortunately the Learning Logs kind of didn't come up.

RESEARCHER:

So how would you explain them to a tutor?

TUTOR:

If I was going to explain them to a tutor, I'd be like you know, the way that would explain it is, I'd give a little project and instead of doing an analysis on the work... you do analysis on yourself, but you've got to... you've got to kind of be removed from yourself and your work, and look back on how you worked. I think the thing is, is obviously, design we're very much focused on... that area of the design school, very much focused in the work. This is what I did, and this is how I did it. Not like well, what was up with me that day, why was I having this problem? I think it's still quite a new thing for (?) tutors that are you know... educated. I'm surprised action research isn't more of a... a known thing. So yes, I suppose to put it in layman's terms for them, I'd be like, look, why was I working that way? Why do I always spend ages... looking? Why do I spend ages like, talking about my ideas rather than actually doing them? Instead of ... instead of writing about Ok, this is how I'm going to plan this piece of work. Yeah, so (that's the only way?) I can think to describe it, just trying to come up with a couple of examples of explaining of how I write, about how I work, rather than what I'm working about.

RESEARCHER:

(?The next falls on, then?), what's the experience of the Learning Log? You obviously see a difference the learning, the design document and the Learning Log, so how does it differ between the design document?

TUTOR:

Well, the design document obviously is reading, it's kind of, it's your initial ideas, it's your whole background research, it's your development, and it's all very much about the work, it's about kind of collating. I mean, they see it just as a markable thing that is documenting how I arrived at this idea, but it's, it's all about visuals, it's all about design, it's all about kind of research, and it doesn't identify why, like, if or why they're going completely down the wrong path. Like they could be doing all of the research down the complete wrong path, but wouldn't have, that just wouldn't come out in a design document. They wouldn't know it, because they're not analysing themselves. So you could have a fantastic design document that is full of so much research and

background information, but is, is rubbish in terms of well, you know what, why, why are you always doing this? You could produce a fantastic design documents with so much in about computer games, and you could have loads of different visuals and sketches, and the effects are going to look like this, you could all of the user scenarios. You could do that amazingly, but it could be completely wrong for the brief, which it was, right. Whereas I would say a Learning Log would be addressing why are you always doing role playing games, what, do you, do see yourself, are you always going to be doing role playing games in the rest of your career? Is this what you're going to be doing forever? So why aren't you moving on with this? What are you going to...you know, so, to me, a Learning Log would get him to identify why is he doing this, you know, and... and then maybe he could, he could identify that, and then he could be like ok, I need to start looking at other areas. So maybe, maybe it's like a good way of, maybe it is like a good way of explaining how you can do a great design document, and why he needs really to do a really good Learning Log, because his project was rubbish because he just went down the wrong route. But he couldn't, he couldn't figure out why he was going down the wrong route. Whereas [student's name has been removed] did some rubbish work initially but she did identify, it was brought up, why are you always doing that style, you're always in that style, it's your comfort zone, you're always in that aren't you? Someone said that to [student's name has been removed], and she got out of it a little bit, so yeah.

RESEARCHER:

The next one is how do the students used the Learning Logs?

TUTOR:

I think most of them used it as a documentation of, a verbal documentation of how, of the work they did. So really, in a way, it was almost annotating their design documents rather than doing a Learning Log. I think... it could be simplified and maybe some really simple examples of like...this is an analysis and this is, this is... action research. So like, I did this, and then, and then other one would be like why did I do it that way, you know, why do I always do it that way? Do you know, like, this is the difference, because I think they just didn't, some of them just didn't grasp it. And it's not like they didn't do the work, because they did, but maybe just some of them were just, I think obviously it served them as a diary would be a better way. So maybe there's some other way to get them to, to figure it out more.

RESEARCHER:

Can you explain the difference between reflection and observation that kind of (?falls on?)..

TUTOR:

Well, yeah to me a reflection is...I mean, say, like the way I remember in third year, it, at every stage in the brief, especially at third year, we had feedback stage, and I did an analysis of the feedback stage, which is like Ok, I listened to all of the feedback, and I'll do a summary of it and like, an overview...which is just like right, this is what the feedback was. Everybody thinks that

this colour is better, I will use...therefore I will use this colour. And that, to me, was analysis at the end of the project. I did right, ok, this didn't work, that didn't work, I didn't spend enough time on this, I left the hard thing right to the end, and so that didn't work. So that's analysis. When I did the Masters and I did the reflection, I was looking at like, well why did I, why did I leave that till the very end? Well I left that till the very end because that what I was most scared of doing and I spent ages doing the nice stuff because I was really scared of failing. I was really scared, and I didn't put my work up on Blackboard to get feedback earlier because I was too scared to put my work up with a bunch of third years that I'd only really just gotten to know. I was too scared to put my work up and have them judge me, and I was...you know, so that's reflection. Which is like, well why? Why did I do it all that way? And it's about being really honest with yourself...and that's quite a hard, hard thing I think for maybe some of them to just be like...to admit that they're scared, but I think when you do realize, I think that you can admit that, yeah you know what... I'm being a bit of a baby here, aren't I? And then you just think God, I'm really losing out here, I need to hurry up and get this up, and then I can get feedback, and then I can do analysis and then I can get on with the project. So to me, that's it. OK.

RESEARCHER:

If you were in my place, not in here, but if you were in my place how would you come in and just say to the students look, what is the value of doing a Learning Log compared to a design document?

TUTOR:

You could be barking up the wrong tree and have no concept that you're barking up the wrong tree. You could be a rubbish designer and have no idea that you're a rubbish designer. You could keep getting bad marks and have no idea why. Do you not want to know why? Do you not want to make yourself better, understand why? You know, being able to stand outside yourself and kind of analyse yourself and be like... look at yourself as a kind of independent designer, that's the only way you're going to be a better designer. You've got to kind of be critical of yourself, figure out what makes you tick, you know, because you could be like, hemming yourself in without realising it. And unless you can stand outside of yourself and go, look, you know, why are you always doing, like, pretty hearts and flowers, why are you always too scared to do this? Then you're going to end up with some rubbish job. And I think that's the kind of things that they're like, Oh. If it's like, I will be a better designer if I do this, I will be able to kind of like...get, get better jobs, work for better companies, do better work, then it's something that, get better marks, then their ears kind of perk up, I think. That's how I'd say it.

RESEARCHER:

What was your experience of the characters? You mentioned (cut off). The characters have been devised for three reasons: the first one is for the tutors to understand their students and help them

improve, the second as a method for peer and student assessment and the third one is for students to understand the ways they need to improve their seeing and looking.

TUTOR:

Oh, God... it completely satisfied all three, completely and utterly. I mean, as I said to you before, and as I said to [tutor's name has been removed] ...and [tutor's name has been removed], I've got a better understanding of the students in first year after three weeks of teaching than I have of the third years after two modules. And I'm teaching them their final, their final project now, and you know, it's your most important thing. Yet I'm still, I'm still finding my way with them, I'm still trying to figure out what is up with them. Whereas with the first years, through the characters, I can look at any one of them and totally understand, I know exactly who they are. It's just kind of holding them as people up to like a...it's like putting...like a litmus test or, you know what I mean, putting or applying some methodology to them. They're totally....makes them kind of transparent in a way, so it's like getting a real insight, so for the tutor thing, it totally and utterly works. I cannot say, I can't, I really can't stress that enough, I'm absolutely blown away to be honest. I really wish I knew this, I wish I had the kind of knowledge that I have, like this, with the third years because I just think that I could help them more...and it makes me feel, in a way, a bit sad that I don't have this knowledge because I want to help the third years more, and obviously, as a tutor, you want to get the best work out of them. And if I knew this about the third years I could instantly be...look, here, this is your problem, I can help you, let's do this. So I'm totally sold on that.

RESEARCHER:

Is there any sort of key words that you picked out, that were like, that really helped me see the students (?from the characters?)?

TUTOR:

I definitely think things like... well, the ownership, I don't think ownership so much applies to the third years. I think most of them have taken some ownership of their work. The barriers, the kind of comfort zones, the being brave.

RESEARCHER:

The next one is the method of peer and tutor assessment.

TUTOR:

The...well, it worked for us straight away. I mean we, you know, obviously it was probably interesting for you, introducing me to the characters once and then when we came and talked, immediately straight after, we were chatting about them it was like, oh yes, that's Dr Watson. Little things that I was saying were completely...were in tune with the characters. So it really did help identify where they were at, but, for the students, that became really evident in the feedback as well... I think instead of trying to, I think it really worked for the students I think it give them a framework to operate from, and it made, it made the crit easier, in a way. And because, even the

Mrs. Hudson ones, which you think Oh, nobody wants to sort of tell someone that they're Mrs Hudson, it kind of made it easier for them to deliver feedback. Because it's, let's say like for a crit, even the third years I see that they're very, they're very, very scared to deliver negative feedback because it's forcing them to come up with their own words, and they struggle how to say that's really not very good. Nobody likes doing it, they're still complaining about it. I'm trying to teach them how to give feedback. Whereas this, it's like, it's almost... it allows them to give feedback without feeling in a way that it's, that they're being the bad guy. It's almost kind of it's giving them something to hide behind. It's like, ok look I can be honest tell you that you're actually Mrs Hudson, and I think that really... also because the characters gives them positive things that they can do to improve, you also give the students the ability to say you could do this to be better. So I think it's equipping them with the, with the, the means to give feedback in a way that they would really struggle without, and I think that once they get used to that... or the more they get used to just being able to give and take feedback like that, they would be, they would be (?great?) by third year.

RESEARCHER:

OK. What was your experience of marking the work when (cut off)

TUTOR:

I think it was really good in terms of identifying, very, very easily being able to identify where a student is at, because through looking at their work, well they didn't engage with this, they haven't really explored this, they haven't brainstormed, they haven't looked round the edges. It's just, it just slotted so perfectly into place, it really did. And when we were talking afterwards about them as people, just to sort of clarify how you got these characteristics right, it was like yeah, that really is them, they really are a Dr Watson, and not just because...these characteristics say so. Our understanding of them separately is that that's where they are, so it really works. I think, for me, as I said, my, my only issue with it was, was grading, psychological kind of...(?) kind of putting them in a kind of a first, a sort of mid two-one, and a, and a lower, a lower two-one, really, or even a third.

RESEARCHER:

How do you see to kind of get around that, because like, if it was to be in (?three twos?), there might have to be a separate mark for the Learning Log and the document, but they kind of still go, they are two separate entities, but they all fit together with the system

TUTOR:

But don't you think it was all hand-in-hand?

RESEARCHER:

(inaudible), I'm thinking.

TUTOR:

It kind of did work, (inaudible). Excuse me, my throat. Because it was how much they'd, they'd

engaged with it, and how much they'd...they'd produced as a result of engaging with it, so they kind of did get marked on their work on a roundabout way, but obviously the Learning Log was where they completely got marked, on the, you know, on how much they engaged with the reflection. So you're saying, if it was to be implemented (inaudible), they would be marked on their work separately and just the Learning Logs would be...

RESEARCHER:

I don't know, because we...

TUTOR:

I think it could go quite easily hand-in-hand, because if you look at basically... it just happens anyway. Basically, your Sherlock Holmes's were up there in the upper two-ones and firsts, and...pretty much, or actually more, yes. Dr. Watsons were kind of the middle ground, and the Mrs Hudson's were at the bottom. And that, that was reflected I think both in the Learning Logs and in their work, so I do think it goes hand in hand. But I mean, so you could quite easily kind of mark the work on the work, and I think, and of still assign them a characters for the Learning Log, which would still tie in with where they are character-wise, so I think it would, I think it would tie in. So whether just the characters, whether just the Learning Log is given a character...and a percentage or not.

RESEARCHER:

The... as a way for students where they're seeing, where they need to improve their seeing and looking.

TUTOR:

Are you asking on how well that worked out? Totally and utterly I think, I think...on the whole, even the, even the kind of objectors, such as [student's name has been removed] ...I think he's like the, the prime example of someone who kicked against it the most. I think, I think what was great about it, is that is it's constructed, it's constructed feedback straight away. I think obviously... you're kind of giving someone negatives, because it's like, look, this is negatives in a way that need to be given. This is what you're doing wrong, but it's giving them, this is where you need to go right. And I think because it's like a perfect balance of the two... they were, helped them take it on board so much better. It's like ok, I've done that wrong, I've done that wrong, I need to do this and this. [student's name has been removed] is an example of someone where it totally worked with, ok I need to do that and I need to do this.

RESEARCHER:

Can you think of anywhere that these characters can be refined?

TUTOR:

I honestly think they work really well however...I'm sure that as we were... one of the things we were talking about was just that, I can see what, maybe there's some people that are...the people that are working, maybe like, they're really in between two characters. I don't know, maybe it's

just, like more development of the characters in terms of more terminology and little snippets of information that might help to kind of give the characters more characteristics, if you know what I mean. Which is exactly what you're doing anyway. Just to sort of fill it out a bit more, even though it works. I'm so 100% sold on this, it totally works. That's the only thing I would say is like, to fill the characters out a bit more. I think they're all nice characters that everyone can engage with, because they're funny as well. I don't mind being a Mrs Hudson so much because she's canny, but Dr Watson is quite cool, and Sherlock Holmes, he's the dude. It just puts such a friendly face on it. But... there was still quite a lot of there to, to kind of... pick from the characters, and it was still really easy to identify which students were which characters, for both the students and for us. But if it's the one thing that they want more, it's more, more... more advice on what can I do to improve myself. We were using a lot of the same kind of advice for people, and obviously if you have that all the way through the same year, you'd probably get bored with hearing the same, must explore around the edges, do you know what I mean, like if you had that at the end of the thing. So I think that's maybe where... the character development would give it more longevity, if it was over a longer period of time. Because maybe they would switch off after hearing the same thing all the time.

RESEARCHER:

Next can you explain a successful student and describe the characteristics that sets them apart and makes, would make them a good designer.

TUTOR:

Well I'll do two. I'll do one for yours. [student's name has been removed], he, I cannot believe how little he knew about Flash, and about tech, his technical skills he was really not that great about. However, he wasn't scared. He systematically and methodically just approached it, and just got stuck in. When he was panicking he, he did the reflection thing. He could stand outside of himself and figure out what he was doing wrong, why he was panicking and why it wasn't working. And as a result, he implemented some changes which completely meant that he wrote up a fantastic... solution. He had great ideas in the first place. So [student's name has been removed], he has great ideas, he works hard and can, and can implement them, but he's able to kind of resolve issues and problems when they come up. And not just work issues and problems... real, yeah, design problems from the designer's point of view. He's great. I'm going to use [student's name has been removed]. Third year. Yeah, there's a couple of very, very different, you've got the conscientious hard worker, [student's name has been removed]. God he's got brilliant ideas, really brilliant ideas, really hard worker, can put in all of the time and energy, he delivers them with flair and he really wants to... he really wants to understand a better way of working. He's like, he's done the critical path analysis way ahead, he doesn't even have to do it yet and he's done it, he's like, right, I want to see how I'm doing this. How is this going help? And he's totally open to any methodology. Really interested in action research, really interested in understanding... really interested in kind of

getting over any barriers that are holding him back. So I kind of see him as someone with real potential. Who else is really great? (inaudible) [student's name has been removed]. Oh my God, I put him as a Sherlock Holmes. I think I put him as a Sherlock Holmes because...let me remember some Sherlock Holmes characteristics. It's his conceptual thinking and his ability to really look at it and...yeah he's definitely a Sherlock. Now you say [student's name has been removed], and I'm wondering if I put him as a Dr Watson even though he's a really great designer. I think I would.

RESEARCHER:

Next one is, how would you describe your teaching style?

TUTOR:

I suppose it depends on what kind of session it is. I mean, it's really funny on the one hand, I would say that I've always been like a... like last year I was very much kind of person to person, almost like a, a you know (?) a surgery type thing, where you know, hey guys, we're all just in it (this time?), I'm going to come round, I might talk to you for like the first five minutes, and kind of look at where we are. Or I'm going to come round and kind of like, you know talk to me about where you are, or like hey, let's get out there. That's changed, that's really quite changed. I'm very much, now, a lot more structured and a lot more, still very nice and very kind of chilled out, but I'm just really kind of realizing the benefits of getting them from A to B, and being... appearing stricter, occasionally, and appearing more... tough, really... and also, well, doing the bad cop thing and, and kind of like sitting them down initially, at the beginning of the class and giving them more of a like, listen, you need to do this, you need to kind of, this is where you're at, and kind of not reading them the riot act a bit, but sort of... well not at all reading them the riot act, but kind of being the, the tough guy at the beginning of the session, and being like, if you don't do this, this is what's going to go wrong. Because obviously this is the point you know, with the third years and the final projects, there's only a matter of weeks left between, before it's all over.

RESEARCHER:

OK, easy was it for you to implement the pedagogy? I mean, you haven't done it by yourself.

TUTOR:

I think it's been very easy, I really would. Had I had more time, what I would really do... would be to set certainly the feedback, certainly the feedback in terms of...the students. I mean I've said it before, like the Blackboard thing, I had them doing the presentations immediately. The presentations, I got them to do the feedback on Blackboard. Had I had more time on the day, I would have done what you've done, which is just getting them engaged in a little bit of conversation. I would have set up initially, how do you want feedback, you know, let's talk about how you want... your feedback to be given. So that they all feel a little bit safer about it, happier to deliver it, happier to receive it. So implementing that with the third years, that would have been great. I think at this stage, I'm not sure if the characters is...they just don't need to think about anything else at this stage. They don't need any other briefs or any other projects, they just need to

get on with the work, which is why the feedback side of it is what I'd focus on in this stage. But certainly... I'd take, I'd take all the way through into the second year... the third year...

RESEARCHER:

Would you done anything different from what I've done so far?

TUTOR:

The Learning Logs, obviously. I mean it's easy to say though, you kind of know that now. I suppose maybe it's just trying to think of the way to make the Learning Logs a less scary, a less... structured thing, and to make it more of a... chilled out thing. I think there was just, the Learning Logs became kind of, this kind of thing that we've got to do, and it almost became like a chore for them, especially the ones that were wanting to kind of like, kick off about it, and be like I don't like this. It became an easy thing for them to be like I just don't get it,(?) what am I supposed to put in mine? So it became too easy for them to kind of, some of them to become negative about it. So I think definitely find another way to make an easier, more relaxed thing. Maybe even more fun. I don't know if there's a fun way that you could kind of, like... make a joke about yourself, you know, have a laugh at yourself for being like so ridiculous. What on earth am I doing this for, why am I so scared? Even something stupid, where they could kind of assign themselves their own ridiculous character, Minnie Mouse or, you know, for they think they performed that week. You know what I mean, how would you say, so...given what you, looked at the you worked this through, what character...you know, well I'm the Incredible Hulk, I got really upset. I don't know. Do you know what I mean? If, if there's a way to make it more fun, and kind of make them more engaged with it, and kind of get them to understand like who they are as people, I think that would work but.. would work better. But yeah, Dan did like even less.(cut off)

RESEARCHER:

Thank you very much for helping me, and for your time. Can I finally ask you if there's anything else from your experience of teaching that has not been covered in this interview?

TUTOR:

It's a shame you didn't have more time. I totally appreciate that's it was like you know, I was kind of brought in because it was like make sure everyone's been seen, but I think... for some of them, it seemed probably quite a scary thing. It's like, the ism initially was like...but they got into it. The whole interface was...but they got into that. The character thing I think was really good... but I think for a lot of them the whole thing was over, the session was over, and they had to go and it was like look guys, you've got to go and the next groups coming in, and I think a lot of them...well, no none of them but you could that sometimes there was a sense of I'm not getting this, help. You know. And just like being able to sit with them for longer and...when you can be like look, don't worry it's just this, it's just this, it's just this, then they kind of got it like so much more. And we did manage to do that, especially between the (?two of us?). I think that, I think that's the only thing just like... so what I have seen is like a huge amount of independence from

them. To be honest there's an awful lot of them that we've been like, yeah you're an independent learner and that's a kind of...all I can do is just compare them to the third years in, in terms of like the crit, the feedback, because that's the only thing that I've got to compare to.

RESEARCHER:

Thank you.

END OF INTERVIEW

APPENDIX THREE: User Testing - Methods and Evidence

3.1 Methods

3.1.1 Teaching Style Evaluation: Grasha-Riechmann Teaching Style Survey

This section presents the Grasha-Riechmann teaching style survey.

Grasha Riechmann Teaching Style Survey

Respond to each of the items below in terms of how you teach. If you teach some courses differently than others, respond in terms only of one specific course. Fill out another survey for the course(s) that you teach in a different style. Try to answer as honestly and as objectively as you can. Resist the temptation to respond as you believe you should or ought to think or behave, or in terms of what you believe is the expected or proper thing to do.

Respond to questions below by using the following rating scale:

1 = strongly disagree | 2 = moderately disagree | 3 = undecided | 4 = moderately agree |
5 = strongly agree

1. Facts, concepts, and principles are the most important things that students should acquire.
2. I set high standards for students in this class.
3. What I say and do models appropriate ways for students to think about issues in the content.
4. My teaching goals and methods address a variety of student learning styles.
5. Students typically work on course projects alone with little supervision from me.
6. Sharing my knowledge and expertise with students is very important to me.
7. I give students negative feedback when their performance is unsatisfactory.
8. Activities in this class encourage students to develop their own ideas about content issues.
9. I spend time consulting with students on how to improve their work on individual and/or group projects.
10. Activities in this class encourage students to develop their own ideas about content issues.
11. What I have to say about a topic is important for students to acquire a broader perspective on the issues in that area.
12. Students would describe my standards and expectations as somewhat strict and rigid.
13. I typically show students how and what to do in order to master course content.
14. Small group discussions are employed to help students develop their ability to think critically.
15. Students design one of more self-directed learning experiences.
16. I want students to leave this course well prepared for further work in this area.
17. It is my responsibility to define what students must learn and how they should learn it.

18. Examples from my personal experiences often are used to illustrate points about the material.
19. I guide students' work on course projects by asking questions, exploring options, and suggesting alternative ways to do things.
20. Developing the ability of students to think and work independently is an important goal.
21. Lecturing is a significant part of how I teach each of the class sessions.
22. I provide very clear guidelines for how I want tasks completed in this course.
23. I often show students how they can use various principles and concepts.
24. Course activities encourage students to take initiative and responsibility for their learning.
25. Students take responsibility for teaching part of the class sessions.
26. My expertise is typically used to resolve disagreements about content issues.
27. This course has very specific goals and objectives that I want to accomplish.
28. Students receive frequent verbal and/or written comments on their performance.
29. I solicit student advice about how and what to teach in this course.
30. Students set their own pace for completing independent and/or group projects.
31. Students might describe me as a "storehouse of knowledge" who dispenses the fact, principles, and concepts they need.
32. My expectations for what I want students to do in this class are clearly defined in the syllabus.
33. Eventually, many students begin to think like me about course content.
34. Students can make choices among activities in order to complete course requirements.
35. My approach to teaching is similar to a manager of a work group who delegates tasks and responsibilities to subordinates.
36. There is more material in this course than I have time available to cover it.
37. My standards and expectations help students develop the discipline the need to learn.
38. Students might describe me as a "coach" who works closely with someone to correct problems in how they think and behave.
39. I give students a lot of personal support and encouragement to do well in this course.
40. I assume the role of a resource person who is available to students whenever they need help.
41. Lecturing is a significant part of how I teach each of the class sessions.
42. I provide very clear guidelines for how I want tasks completed in this course.
43. I often show students how they can use various principles and concepts.

3.1.2 Teaching Style Evaluation: Description of Grasha-Riechmann Teaching Styles

Grasha (2002, pp.153-4) considers teaching style to be like colour on an artist's palette, "colours on a canvas are blended and organised to make a statement or to create a mood", which in his view can vary with every teacher having their own blend of the five styles described below:

Expert: Possesses knowledge and expertise that students need and strives to maintain status as an expert among students by displaying detailed knowledge and by challenging students to enhance their competence. They are concerned with transmitting information and ensuring that students are well prepared.

Formal Authority: Possesses status among students because of knowledge and role as a faculty member. They are concerned with providing positive and negative feedback, establishing learning goals, expectations and rules of conduct for students and also with the correct, acceptable and standard ways to do things and with providing students with the structure they need if they are to learn.

Personal Model: Believes in teaching by personal example and establishes a prototype for how to think and behave. They oversee, guide and direct by showing how to do things, and encourage students to observe and then emulate the instructor's approach.

Facilitator: Emphasises the personal nature of teacher-student interactions. They guide and direct students by asking questions, exploring options, suggesting alternatives and encouraging them to develop criteria to make informed choices. Overall their goal is to develop in students the capacity for independent action, initiative and responsibility. They work with students on projects in a consultative fashion and try to provide as much support and encouragement as possible.

Delegator: Concerned with developing students' capacity to function in an autonomous fashion. Students work independently on projects or as part of autonomous teams. The teacher is available at the request of students as a resource person.

Grasha (2002, pp.156-7) outlines expert/formal authority teaching styles are used when addressing first and second year undergraduates and where there is time pressure, and/or large groups of people, through the use of lectures, transmitting information to students who become relatively passive participants, it helps the students meet their expectation, through helping them go through the motions. Whereas personal model/facilitator/delegate styles, suggest more willingness to take

risks, and can be employed at upper-undergraduate and post-graduate level. According to Grasha (2002, p.156) who researched 560 colleges, teaching styles were found to change depending on the situation.

3.1.3 Knowledge Elicitation Exercise

The design educators completed the knowledge elicitation exercise⁸⁰ after each case study to evaluate the use of the teaching-learning artefacts in relation to fostering designers' visual practices. An elicitation exercise is appropriate for experts with a vast amount of experience, as their knowledge would be expected to be difficult to articulate, due to its tacit nature, in terms of the way they solve problems. As Jetter (2006) contends:

“experts only need a little information to analyze a problem and to choose the matching solution from the cases they have accumulated in their memories. Problem-solving by these experts is, therefore, almost automatic and often experts are not ever fully aware of how they have solved a particular problem.” (p.69)

However elicitation activities are limited by semantic knowledge, this term refers to how the knowledge of the event was remembered and the terminology used (Jetter, 2006, p.69). To ensure this was not an issue, the elicitation exercise was piloted with an educator involved in the design experiments.

This elicitation exercise used Brockbank and McGill's (1998)⁸¹ model of reflective learning to elicit current teaching practices and evaluate the teaching-learning artefacts in relation to the fostering of first year students' visual practices. The exercise involved the following three stages:

- Stage one: The first stage develops insights into the design educator's teaching practice with first year students. Educators were asked to read all of the dimensions of reflective learning, and tick where they believed each dimension of reflection would normally occur when fostering designers' visual practices in the first year design studio. Then at each dimension of reflective learning, the educators were asked to record the teaching-learning artefacts and activities alongside the tick they had made.
- Stage two: This stage asked educators to visualise where the selected teaching-learning artefacts had fostered students' visual development in the module over the four week project.

⁸⁰ Elicitation activity involves “the explication of unarticulated latent knowledge that the knowledge owner might not even be fully aware of... Elicitation requires that people are conscious of, and successfully express their knowledge and that their expressions are adequately represented and interpreted” (Jetter, 2006, p.65).

⁸¹ Brockbank and McGill's (1998) five dimensions of reflective learning are outlined in Section 3.3.1, p.43. In the same way as the content analysis, a sixth dimension: after action – reflexivity on visual practices was added in this schema as the overarching purpose of the reflective process in this study was concerned with enabling design students to reflect on and then develop their own visual approaches to engagement in a visual context.

- Stage three: The last stage asked educators to observe differences between current teaching practices and the use of the teaching-learning artefacts in their module through comparing the previous two stages.


Table 3.1 presents the knowledge elicitation exercise form the educators were asked to complete.

Table 3.1: Knowledge elicitation exercise form

Stage 1: Visualise where teaching-learning artefacts and activities are currently used in a first year studio to foster students' visual development:				
Brockbank and McGill's Reflective Dimensions	Week 1: Research	Week 2: Concepts	Week 3: Development	Week 4: Prototype and Presentation
6. After Reflection				
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)				
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)				
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)				
2. Reflection-in-Action				
1. Action				
Stage 2: Visualise where the selected teaching-learning artefacts had fostered students' visual development in the module:				
Brockbank and McGill's Reflective Dimensions	Week 1: Research	Week 2: Concepts	Week 3: Development	Week 4: Prototype and Presentation
6. After Reflection				
5. Reflection on (4) 'Reflection on (3) 'Reflection on Reflection-in-Action (alone)				
4. Reflection on (3) 'Reflection on Reflection-in-Action' (reflection with others)				
3. Reflection on (1&2) 'Reflection-in-Action' (alone after the event)				
2. Reflection-in-Action				
1. Action				
Stage 3: Observation of differences between current teaching practice and the use of the teaching-learning artefacts in the module:				

3.2 Case Study Project Briefs

3.2.1 Case Study One



Level Four
Module DE783, Information Design 01
Part B

Project Title

Inform the Un-informed

Brief

This is the second part of the Information Design module.

"Information design in its widest sense is about the selection, organization and presentation of information to a given audience."
Peter Wildbur and Michael Burke, Information Graphics, Thames and Hudson.

Information design, as a discipline, requires, primarily, the efficient communication of a given problem, implying a responsibility that the content is accurate and unbiased in its presentation. Information is only of benefit if we were previously unaware of some or all of the material contained.

The information designer may be perceived as a 'transformer' of information from 'raw data', a set of 'actions' or a 'process' into material that the given audience can grasp.

Over the next **FOUR** weeks, in this module, you will be asked to design an information system for one local museum. You will begin by undertaking research at three local museums/exhibition centres to compare and contrast their approach to informing the public about their contents. These are:

Centre for Life
The Baltic
Hancock Museum (now closed for refurbishment)
Discovery Museum

Choose from either of the museums (not Centre for Life) as your subject.

You will be required to rapidly develop a new 'Identity' which you will use throughout your information material.
You will have to design signage, both inside and outside (to inform your audience as to the contents of the building and the most efficient flow of movement), an informatics leaflet with instruction and contextual information, including a map of the exhibits, a digital kiosk for information near the entrance to the exhibition

- what will this contain?
- How will it look 'on screen' and in terms of a piece of design
- the contents may be executed using Flash.

Your audience will be 'Foreign Visitors' whose English is passable

- they are more likely to understand icons and visuals than large bodies of text.

Aims

To understand the theory, principles and language of information design.

To encourage a creative response to the design and visual presentation of information and its appropriateness for a specific target audience.

To utilise the principles of information design across a range of different media.

Important Notes

Please note that **no excuses** will be accepted for lost work. Backup. Spelling will be taken into account so proof read all your work (and get someone else to.)

All flat work must be submitted in one piece, no bigger than an A2 portfolio. You must put all work submitted into some kind of container such as a portfolio. Any disks, prototypes, mock-ups etc. should be included in such a way, as they do not become separated from flat work. All elements should be labelled clearly.

Figure 3.1: Case study one project brief (Page 1)



Work requirements

1. Design Document, with notes and analysis of your research findings including any informational literature from the venues visited, audience, inspirational research, typography etc.

Research, concept, and development work for the new identity, the leaflet (shape, size, elements, information), signage - inside and out, Kiosk design. Use InDesign (or your preferred design tool) then create one PDF for on screen presentation.

2. New identity, leaflet (InDesign) with map (created in Illustrator). Signage mock-ups (including one exhibit board), in Illustrator

- supporting portfolio sheets - you may find it easier to use these to show how your signage and identity will work.

3. Interactive Kiosk design, in Director and Flash, e.g. main menu, map, exhibits and contextual information, shops, cafe, added value, etc.

NB: You should design the structure of the Kiosk but will only have time to put content into one section of the exhibition.

4. A learning journal or diary, with weekly entries concurrent to the design document entries.

LEARNING OUTCOMES

Students will be able to:

Practical projects will demonstrate the role of the designer in the development and creative presentation of images, facts and ideas.

Students will develop skills to apply analytical and creative thinking in relation to the communication of information.

Assessment Weightings

1. Design Document and "learning logs/diaries" : 35%

2. New Identity, Information Leaflet and Signage, portfolio sheets: 30%

3. Interactive Kiosk/Interface : 30%

4. Presentations : 5%

To see how these equate to actual degree marks, please refer to the Student Handbook

PRESENTATION DATES:

The presentation of your work will take place in the week of the 23rd of April 07

Figure 3.2: Case study one project brief (Page 2)



Work schedule

Lesson 01

*Briefing, introduction presentation
Begin research*

Lesson 02

Continue research and analysis in Design Document

Lesson 03

New identity development

Lesson 04

New identity presentation

Lesson 05

Map tutorial

Leaflet design

Lesson 06

Leaflet design with map

Lesson 07

Leaflet design and signage

Lesson 08

Signage design

Lesson 09

Presentation of identity, leaflet, signage etc. as mock-ups and portfolio sheets

Lesson 10

Digital kiosk design

Lesson 11

Digital Kiosk Design

Lesson 12

Digital Kiosk Design

Reference

Books:

Fawcett-Tang, R., (2002) Mapping:
An Illustrated Guide To Graphic
Navigational Systems, Rotovision

Head, Alison J., (1999), Design Wise,

Medford, N.J. : Information
Today/Information Design Journal, London.

Jacobson, R., (1999) Information
Design, Cambridge Press

Lipton, R. (2002) Information Graphics and
Visual Clues, Rockport Publishers

Raskin, J., The Humane Interface:
New Directions for Designing Interactive
Systems

Tufte, E. R., (1990) Envisioning
Information, Graphics Press UK

Wildbur, Peter, (2001), Information
Graphics:

Innovative Solutions in
Contemporary Design, Thames & Hudson

Woolman, M., (2002), Digital
Information Graphics, Thames & Hudson.

Student Handbook

The Internet

The library

Figure 3.3: Case study one project brief (Page 3)



Creative thinking or brainstorming Mind Maps have a great many objectives. The major ones are:

- To explore all the creative possibilities of a given subject.
- To clear the mind of previous assumptions about the subject, thus providing space for new creative thought.
- To generate ideas that result in specific action being taken or physical reality being created or changed.
- To encourage more consistent creative thinking.
- To create new conceptual frameworks within which previous ideas can be reorganised.
- To capture and develop 'flashes' of insight when they occur
- To plan creatively.

THE MIND MAP AS A CREATIVE THINKING MECHANISM

The Mind Map is ideally suited to creative thinking because it utilises all the skills commonly associated with creativity, especially imagination, association of ideas and flexibility.

In psychological literature, especially in the testing manuals on creative thinking by E. Paul Torrance, flexibility has been identified as a vital element in creative thinking. Other important factors include the ability to:

- Associate new and unique ideas with pre-existing ones
- Use different colours
- Use different shapes
- Combine unusual elements
- Magnify and use dimension
- Adjust conceptual position
- Rearrange and link pre-existing concepts
- Reverse pre-existing concepts
- Respond to an aesthetically appealing object
- Respond to an emotionally appealing object
- Respond to an object which appeals to the senses of sight, touch, hearing, smell and taste
- Use interchangeable shapes and codes

THE PURPOSE OF MIND MAPS

- Unleash the power of our visual cortex
- enhance our memories storing and recalling capabilities through the use of imagery
- increase our aesthetic pleasure
- breakdown our resistance to use images in learning
- aid mental relaxation
- develop powers of visualisation
- make use of our cortical skills: colour, form, line, dimension, texture, visual rhythm, imagination.

SUMMARY OF THE MIND MAP LAWS TECHNIQUES

Use emphasis:

- Always use a central image
- Use images throughout your Mind Map
- Use three or more colours per central image
- Use dimension in images and around words
- Use variations of size of printing, line and image
- Use organised spacing
- Use appropriate spacing

Use association:

- Use arrows when you want to make connections within and across the branch pattern, use colours, use codes.

Be clear:

- Use only one key word per line
- Print all words
- Print key words on line
- Make line length equal to word length
- Make major branches connect to central image
- Connect lines to other lines
- Make the central lines thicker
- Make your boundaries 'embrace' your branch outline
- Make your images as clear as possible
- Keep your paper placed horizontally in front of you
- Keep your printing as upright as possible

Develop a personal style

Your Notes::

Figure 3.4: Case study one project brief (Page 4)

3.2.2 Case Study Two



Level four
Module DE0442_Design influences 02

Project Title

Inspired by...

Academic Year 2006/07

Introduction

The ability to observe, interpret and tap into the zeitgeist [spirit of the times] is an important aptitude. Companies proactively seeking to understand their consumer and the intricacies of the marketplace are able to offer products and services that realistically reflects life's complexities.

It is crucial for you as design students to understand the process of trends and their influence and effect on commerce. Look at how the recent media portrayals of an 'ideal' celebrity lifestyle have driven product and attitude.

This module addresses the trend industry and its influence on design. Trend consultancies identify and report on influential trends in order to inform of forthcoming design direction, enabling companies to consolidate their products/services in line with anticipated market forces. Trend agencies perform a vital focusing role, creating an important juncture between influence and production by detecting, collating and co-ordinating information. Personal intuition, creativity, and the interpretation of the zeitgeist, results in certain enriched future possibilities being forecast.

Brief

A magazine has approached you on a freelance basis to write an illustrated/visual article about trends, giving 3 examples to illustrate how trends start, develop and effect the market. You will be selecting from the following SPEAC influences:

Social – demographics, lifestyles, religion, shopping patterns
Political – trade, ethical, legislative, equality and control issues
Economic – employment, environmental, disposable income
Artistic – music, art, film, product [e.g. Vespa, Walkman etc]
Cultural – the media, entertainment, leisure, technology
Style – high fashion, street style

The aim of the module is that you gain a general awareness of design-related trends, but that you specifically identify and report on 3 trends for your final outcome. Your research should take sketchbook format and comprise : original sketchwork, some tears/cut & paste, annotation, photography and relevant prediction information. You may incorporate your learning log as part of your sketchbook.

The research should be brought to a conclusion through the presentation of 2 double page spreads, which will offer the key points relating to three of your identified trends. Your article can be journalistic in its written style, but you must reference your writing with valid sources [as in your academic writing]. You may design the pages in any way that you wish as long as they are graphically fresh and professionally presented on hardboard.

Aims

To develop student ability to synthesise, co-ordinate and resolve a creative response to design problem solving.

To develop a rounded understanding of design as a multidisciplinary profession. To enable the student to appreciate and value the cultural, economic and artistic influences on contemporary design. To apply learned skills in the development and presentation of visual and written online communications.

Learning Outcomes:

Students will be able to :

Understand and communicate in the appropriate terminology.

Present findings in a professional manner developing technical and creative skills.

Analyse and report visually on current social, political, economic and cultural trends.

Criteria for assessment

Please refer to Student Handbook

Mark Weighting Scheme

1. Sketchbook/research 30%
2. Learning Log 30%
3. 2 x double page spread articles on 3 chosen trends. 1,500 words + images/ visuals. Sources [bibliography], references, spelling, grammar and presentation will also make up this mark. 40%

Submission Date

Presentation w/c 28th May 2007.

Figure 3.5: Case study two project brief (Page 1)

Project Title

Design Influences 01

Academic Year 2006/07

INDICATIVE READING LIST OR OTHER LEARNING RESOURCES

The required reading for this module is determined by the student with tutorial guidance and will be appropriate to the subject material of the specific project. An indicative reading list, however, may include:

- Berger, W. (2001). Advertising today. Phaidon.
- Hill, S. (2002). Sixty Trends in Sixty Minutes. Brandweek.
- Klein, N. (2000). No Logo. Flamingo.
- Landa, R. (1998). Thinking Creatively: new ways to unlock your visual imagination. North Light Books.
- Lawson, B. (1990). How Designers Think. Butterworth Architecture.
- Lewis, D., Bridger, D. (2001). The Soul of the New Consumer: Authenticity – what we buy and why in the new economy. Nicholas Brealey Publishing Ltd.
- MacKenzie, D. (1991). Green Design, design for the environment. Laurence King.
- Norman, D. (1988). The Psychology of Everyday Things. Basic Books.
- Papanek, V. (1997). Design for the Real World. Thames and Hudson.
- Popcorn, F. (1991). The Popcorn Report. Arrow.
- Popcorn, F., Hanft, A. (2001). Dictionary of the Future: the words, terms and trends that define the way we'll live, work and talk. Hyperion.
- Popcorn, F., Marigold, L. (1996). Clicking, 16 trends to future fit your life, your work, and your business. Thorsons.
- Spence, W. R. (1994). Innovation. Chapman and Hall.
- Sternberg, R. J. (1997). Thinking Styles. Cambridge University Press.
- Sternberg, R. J. (1999). Handbook of Creativity. Cambridge University Press.
- Sternberg, R. J., Davidson, J. E. (ed.). (1995). The Nature of Insight. MIT.
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Figure 3.6: Case study two project brief (Page 2)

3.3 Case Study Schedules

3.3.1 Case Study One

Table 3.2: The class schedule for case study one (studio sessions where the researcher was present are shaded in grey)

Weeks	Studio sessions	Actions
Week 1	Studio session 1	Introduction to brief
	Studio session 2	Tutorials (one on one)
	Studio session 3	Design critique
Week 2	Studio session 4	Design critique
	Studio session 5	Design critique
	Studio session 6	Design critique/presentation The Sherlock Holmes Personas Version Two was used as a method of peer and tutor assessment during the presentation
Week 3	Studio session 7	Tutorials (one on one)
	Studio session 8	Tutorials (one on one)
	Studio session 9	Production skills: Adobe Illustrator [®]
Week 4	Studio session 10	Tutorials (one on one)
	Studio session 11	Tutorials (one on one)
	Studio session 12	Tutorials (one on one)
Presentation		Design critique/final presentation The Sherlock Holmes Personas Version Two was used as a method of peer and tutor assessment during the final presentation

3.3.2 Case Study Two

Table 3.3: The class schedule for case study two (studio sessions where the researcher was present are shaded in grey)

Weeks	Studio sessions	Actions
Week 1	Studio session 1	Studio session was cancelled
	Studio session 2	Introduction to brief
	Studio session 3	Self-Evaluation Activity and tutorials (one on one)
Week 2	Studio session 4	Tutorials (one on one)
	Studio session 5	Tutorials (one on one)
	Studio session 6	Idea development presentation
Week 3	Studio session 7	Studio session cancel
	Studio session 8	Tutorials (one on one)
	Studio session 9	Final production techniques
Week 4	Studio session 10	Tutorials (one on one)
	Studio session 11	Tutorials (one on one)
	Studio session 12	Tutorials (one on one)
Presentation		Design critique/final presentation The Sherlock Holmes Personas Version Two was used as a method of peer assessment during the final presentation

3.4 Samples of Descriptive Observations

3.4.1 Case Study One

Classroom observation

Case study One or Two (circle one)

Stage design process WEERS-

Number of students in class 10

Classroom activity DESIGN CRITIQUE

Observation (circle one): 1 2 3 4 5 6 7 8

Start Time: 9.00 End Time: 10.30 Date: 24/04/07

Group A and B (circle one)

Part A: Description Observation

Space (S): layout of the physical setting: rooms, outdoors spaces, etc.
 Actors (A): the name and relevant details of the people involved
 Activities (AC): the various activities of actors
 Objects (O): physical elements: furniture etc.
 Acts (A): specific individual actions
 Events (E): particular occasions e.g. meetings
 Time (T): the sequence of events
 Goals (G): what actors are attempting to accomplish
 Feelings (F): emotions in particular contexts.

The tutor starts by asking the student to prepare their work.

The Ask them to prepare world, consider it as a prototype, talk about how you got their

Student are around the table with the short character content of them.

J.J. talking about work, during the presentation the tutor asking them questioning about the work

Students Tutor

Ask for question from students - do you like it?

ask work. Student feedback on the work, consider

Student appear happy to engage in written feedback and hearing them to start talking, asking students the character

talk and question. I only ask question do he talk about reflect

Student are presenting in the con

R.C.

M.H - Talk about work, and experience in the manner and the tutor questions indicating the presentation

→ Heard my feedback? No response for peers.

S - He give feedback on the work and the outcome.

Student are not really telling the character, they are just writing comments on their sheets.

L.C. Presented the work in showing the prototype.

any comments? -

Can A student commented on how you ask anyone to use it and he had.

Figure 3.7: Case study one – a sample of a descriptive observation (Page 1)

Their appear to be a talk between
 tutor and students.

The tutor just questions how it could be done.
 with some input by the other.

Student are telling about 10-20 min presenting
 their work.

he is encouraging them to write feedback.

CM - talk about work; he is questioning them
 during the process.

He is questioning about the visual style.
 Student is giving feedback on the layout.
 He is telling them what he like in the work.

P.C. Talk about work - and convey ideas and he
 was answering them during the process, to clarify.
 he talk to them it work well asking if he
 got have any measure for feedback of which
 he had not.

There was discussion on how the work learning
 talking about asking him to start early.
 saying he could have done a lot better.

R.C. talk about work, and the outcome.
 his comments.

And the same student give feedback on the
 about the visual layout.
 talk about it as asked about telling on other
 and he had
 he had give feedback on work.

L.S. - talk about progress, and outcome, in the
 sketchbook.

The same student (J.S.) give feedback to the
 group. questions the layout.
 then the tutor question her
 on the outcome.

L.H. - Talk through work and process and
 the reason behind his work.

Figure 3.8: Case study one – a sample of a descriptive observation (Page 2)

He was the tutor giving them feedback
 on the kiosk - the outcome
 PG. Give a presentation on the work,
 and the tutor question during the
 presentation.
 Only when questions talk about the learning
 process.
 peer feedback saying it look nice.
 the tutor asked for the had a
 feedback, and he had in a form of
 questionnaire.
 S.A. Talk about the work and the outcome
 feedback was for tutor was to layout
 and selection a style.
 S.E. talk about work and outcome,
 student are start to not engage in with tutor.
 Question from tutor was on the outcome
 as student was no involved in the feedback.
 Tutor here to thank you for presentation and
 end the session. 8th don't leave the feedback
 sheet on the table

Figure 3.9: Case study one – a sample of a descriptive observation (Page 3)

3.4.2 Case Study Two

Classroom observation	
Case study One or Two (circle one)	Observation (circle one): ① 2 3 4 5 6 7 8
Stage design process: <u>WEEK 1</u>	Start Time: <u>11:30</u> End Time: <u>12:30</u> Date: <u>10.05.07</u>
Number of students in class: <u>10</u>	Group A and B (circle one)
Classroom activity: <u>SELF-EVALUATION ACTIVITY</u>	
Part A: Description Observation	
<p>Space (S): layout of the physical setting: rooms, outdoors spaces, etc. Actors (A): the name and relevant details of the people involved Activities (AC): the various activities of actors Objects (O): physical elements: furniture etc. Acts (A): specific individual actions Events (E): particular occasions e.g. meetings Time (T): the sequence of events Goals (G): what actors are attempting to accomplish Feelings (F): emotions in particular contexts.</p>	
<p>Educator's name has been removed Educator's name has been removed</p> <p>STARTED THE SESSION BY HANDING OUT PROJECT AND THE SELF EVALUATION ACTIVITY TO THE STUDENT.</p> <p>STUDENT ARE SITTING AROUND THE CENTRAL TABLE. STUDENT ARE ASKING HER ABOUT HOW TO DO THE LOG LEARNING AND WHAT THE PROJECT INVOLVES.</p> <p>SHE DESCRIBE FOR TO PUT IN THE REFLECTON WRITING STYLE, 'CONNECT MEAN MAKE DURING THE PROJECT' (WHERE YOU ARE MAKE RELATIONSHIP)</p> <p>SHE STARTS THE SESSION BY INTRODUCING THE EXERCISES AND CHECKING THE START HAVE THE MATERIAL TO COMPLETE THE EXERCISES.</p> <p>STUDENT AT THIS POINT HAVE THEIR PAST WORK IN FRONT OF THEM WITH STICK NOTE.</p> <p>SHE ASK THEM TO CONSIDER WHAT CHARACTERS THERE HAVE BEEN WHERE THEY HAVE BEING 'SEEN' AND LOOKING, AND CONSIDER WHERE THEY NEED TO IMPROVE, AND CONSIDER A QUESTION ABOUT THEIR LEARNING TO ASK THE PARTNER AND AT THE END OF THE SESSION THEY WILL GET FEEDBACK FOR PAST CRITIQUE.</p> <p>Educator's name has been removed Educator's name has been removed</p> <p>START TO GO AROUND THE STUDENT INDIVIDUALLY, WHEN SHE IS DOING THIS SHE IS ASKING THEM TO REFLECT ON ^{Educator's name has been removed}'S PROJECT, ASKING A STUDENT TO 'WHAT HELP YOU? THE STUFF FOR HINDERED YOU? THE WAS CONCERN ABOUT THE TIMEFRAME AND MANAGING ANOTHER PROJECT AT THE SAME TIME.</p>	

Figure 3.10: Case study two – a sample of a descriptive observation (Page 1)

WITH THE NEXT STUDENT WHO FELT THEY WERE ARE A MRS HUDSON, SHE LONG THEM TO THINK ABOUT ASKING FOR FEEDBACK, AS THAT WOULD HELP THEM TO MOVE ON AND IMPROVE

MOSTLY ^{Educator's name has been removed} IS ASKING 'WHERE WERE ARE YOU ENGAGING?'

AND THEN LISTENING TO HOW THERE HAD MANAGE THE PROJECT, EVERYNOW AND AGAIN SHE APPEAR TO BE HAVING A LAUGH AND JOKE WITH THE STUDENTS, CREATING A FREDY ATMOSPHERE

WITH ONE STUDENT SHE IS TALKING TO ~~HE~~ FOUND IT HARD TO COMAETE THE PROJECT. FIONA RECONGTING GIVE THAT HE WAS A MATURE STUDENT, THAT HE COULD ~~HE~~ OBSERVE, AND HE RECONGISE WHEN HE IS NOT OBSERVING WELL. HOWEVER SHE ENCORGHE HIM TO NOT ONLY THINK BUT HE NEED TO APPLY HIS THINKING, THE STUDENTS RECONGISE THAT HE SEE THING IN A DIFFERENT WAY AND DOES NOT FOLLOW THE CROWD. AND ^{Educator's name has been removed} SAID HE MUST USE THAT IN THIS PROJECT, ENCORGING HIM TO DO MORE READING. AND SHE RECONGISE THAT STUDENT DO NOT DO A LOT OF READING, AND THIS COULD BE ONE OF HIS STRENGHT.

SHE THEN PUT THE STUDENTS INTO GROUP, USING THE SHEET PROVIDED SHE ASK THE TO TALK ABOUT THE QUESTION ABOUT THEIR LEARNING, WHAT THEY ^{REVIEWING} HAVE GAIN FOR THEIR LEARNING LOG.

THEN SHE CONTINUE TO GO AROUND THE GROUP FACIATING AND LISTEN. WITH STUDENT ALSO ASKING ABOUT WHAT WAS THE PROJECT ABOUT, SHE WAS DIRECTING THE ABOUT WHERE TO LOOK FOR RESOURCES TO RESEARCH THE PROJECT.

SHE HAND OUT THE FEEDBACK FORMS, AND ASK STUDENTS TO WRITE UP WHAT THEY HAVE DO AND LEARN IN DURING THIS SESSION. AND UNDERSTAND WHAT THEIR NEED TO WORK ON. ANY QUESTIONS -

A STUDENT ASK ABOUT WHAT PERCENTAGE OF THE MAKE IS THE LEARNING LOG - SHE REDELY 30%.

THEY ASK ABOUT THE DIFFERENT BETWEEN THE LEARNING LOG AND DESGN DOCUMENT SHE MADE IT CLEAR IT WAS DIFFERENT ASKING STUDENT TO DO IT IN THEIR SHEA SKETCHBOOK AND THEN CHECK UP ON THEM NEXT WEEK. THEN STUDENT ASK ABOUT THE PROJECT.

Figure 3.11: Case study two – a sample of a descriptive observation (Page 2)

3.5 Samples of an Reflective Diary

3.5.1 Case Study One

Studio sessions: 3

Date: 8th March 2007

Student Group: B

Activity: Design Critique

The following indirect observation of the design educator's session was written following the studio session, using the field observations and audio recording to assist recollection:

1. Teaching style description:

It was a relaxed atmosphere where students were sitting and talking about their work. The tutor started the studio session by getting the students to discuss and present their sketchbook work to the group. The sketchbook is a new process for them, as the student project in the design experiment research phase asked students to complete a digital Learning Log. The tutor has been encouraging students not to use the computer at the start of this project, so they can focus their thinking around their ideas. When the tutor asked students to comment on each others' work during the design critique, their feedback was limited, mostly saying to their peers that they thought their work was 'good'. There was little interaction and discussion of ideas or research between students except from the students who had completed the most work. The tutor did not pick on anyone directly by name to give feedback,

The tutor encouraged them to develop the sketchbook work. They had given students time in this project to explore and to look for themselves. The tutor was observed asking them about how their work was going to be achieved; giving positive and negative comments; asking them to record their process in their sketch book – "could you record your thought process and stick what you heard here in your sketchbook, so we can see the flow of development, and comment as you go along". It appeared the tutor's teaching style was influenced by a limited time frame for this project, as they said to a student: "you only have four weeks to complete the project you could not have done this in a commercial environment, play to your strengths by working on the conceptualisation and the process which is so important". In addition, they were observed in this session asking students to select an idea, and consider why that was important.

2. Teaching-learning artefacts used:

During this research/concept presentation the educator did not comment on the Learning Log with group B.

3. A description of how the teaching-learning artefact was used:

The educator did not comment on the students' use of the Learning Log or comment on their learning process. However they were observed asking students to consider why they had made their design decisions, to comment on their design process and asked questions that enabled them to analyse their work.

4. Interaction between students and comment on students' work:

There was little interaction and discussion of ideas or research between students, except for those who had completed the most work. The tutor asked students to come up with ideas as they were going along. There was no evidence of brainstorming or inspiration gained from artists and designers at this point in developing concepts; inspiration was mostly from the students' visits to the museum.

3.5.2 Case Study Two

Studio sessions: 3

Date: 10th May 2007

Student Groups: A and B

Activity: Self-Evaluation Activity

The following indirect observation of the design educator's session was written following the studio session, using the field observations and audio recording to assist recollection:

Plan:

The educator asked for assistance in implementing the Self-Evaluation Activity at the outset of their module. Therefore the intent was to show the educator how to carry out the Self-Evaluation Activity with Group A, then the educator would carry out this exercise with Group B.

Do:

The session started by going through stage 1 – asking them to consider when they were looking and seeing and which characters of the Sherlock Holmes Personas they had been in their past Learning Logs. Then the students were asked to discuss with a partner what they had found out about how they were working. At the end of the session, students received feedback on what character(s) their peers and the educators had considered them to be in the last two projects.

Then the educator went around talking to the students, helping them to reflect and understand their Learning Log. The educator was asking such questions such as:

- 'Do you have a particular style of experimenting?'

- ‘Are you getting the marks you want?’

The educator were observed saying to a student:

- ‘There is a need for you to reflect, and see,... it will help, and to be honest about it, so that when you learn, so that when you are making your portfolio you can look at it and say I have to improve.’
- ‘Do you tend to asked others for feedback?’ To which the student responded: ‘Not really’. The educator replied: ‘I think it is about being brave enough to ask people, and then this feedback will help you to improve.’

Reflection:

The educator was able to help students to see their weaknesses and strengths, and be open to feedback and had engaged well in the Self-Evaluation Activity. It seems that this activity fitted well with what would normally be happening in the design studio at this point in the design project; where students are still trying to understand the brief. The group seemed to engage in a range of conversations with their partners, from talking about how they see, to how they learn and want to learn. During this activity the educator was laughing and joking with the students.

3.6 Samples of Design Educators’ Interview Transcripts

3.6.1 Case Study One

The following transcript is from an interview conducted with the educator after the first case study.

Educator ID: EDUCATOR

Interviewer ID: RESEARCHER

RESEARCHER:

What was your experience of the innovation production design project?

EDUCATOR:

[inaudible segment] it seemed to work well, they seemed to do some really strong work. [inaudible segment] So I think it worked quite well in that sense. But they didn't take on any of the more intellectual stuff I was teaching. [inaudible segment] some of them take it on. Some of them listen but went away and...

RESEARCHER:

What were your view? What kinds of more intellectual things were you trying to take on board?

EDUCATOR:

[inaudible segment] and what books to go and read about current theories. [inaudible segment] dynamic [inaudible segment]

RESEARCHER:

Do you feel that the outcomes of the project were met?

EDUCATOR:

Yes they were, most of them, the marks were quite [inaudible segment]. The marks of the interface [inaudible segment] physical design, tangible design was quite hard [inaudible segment].

RESEARCHER:

Strategies fitted in with your teaching style?

EDUCATOR:

It fits in a way, because as I've said before I'm not a great [inaudible segment] person, I don't like to force people, although I like them to realise [inaudible segment]. But I think it worked in that sense. I might have a go, but I don't know if I want to apply it in such a rigid fashion. But I quite like it, it's definitely [inaudible segment]. I've never used reflection [inaudible segment] explicitly.

RESEARCHER:

OK. How would you describe the teaching approaches to another educator?

EDUCATOR:

It's a process that asks students, it helps and nurtures them in a process of self-reflection, reflection on the actual process that they're engaged in, giving them some form of benchmark. Then you work with a character to create a benchmark, and then you [inaudible segment], bit like the Alpha course [inaudible segment] I suppose.

RESEARCHER:

OK. What value, if any, has the teaching approaches brought to the students?

EDUCATOR:

Some of them don't see it, but it has, I won't say forced, but it has created...a lot of them don't want to do it, there's a lot of resistance, [inaudible segment] but the majority of them are doing it. They're doing it now in a more structured fashion: "I [inaudible segment] because", "I did this because ", they're thinking about how they got through the journey. [inaudible segment] their vocabulary is getting better.

RESEARCHER:

What value, if any, has the teaching approaches brought to you as a tutor?

EDUCATOR:

As I said before, it's given me more specific about reflection, and helping them on the journey. Because [inaudible segment] process. I mean there is a reflective part in process, feeding back in [inaudible segment]. But that's it.

RESEARCHER:

OK. What was your experience of their learning diaries?

EDUCATOR:

I haven't looked at that yet, I haven't marked that

RESEARCHER:

What was your experience inside the class?

EDUCATOR:

Well some of them got it and wrote stuff down, but a lot of it was verbal, because they do an evaluation in the design document. But they were using at the end [inaudible segment] diary. But some of them were writing things down. And it helped because you could see the process, where they were moving. People that don't tend to write things down, which is most of them, [inaudible segment] at the end.

RESEARCHER:

OK. How do you think that the learning diaries or learning logs differ from the design document? Or do you use them [inaudible segment]?

EDUCATOR:

[inaudible segment] They're chronological things, and at the time, the design documents are retrospective.

RESEARCHER:

Do you see any value in either one compared to the design document?

EDUCATOR:

I definitely don't like the design document [inaudible segment] structure around it, because I think it's...I prefer to see everything in my head and then [inaudible segment]. They've both got strong points, the learning log and the design document. I mean the learning log should inform the design document but the design document shouldn't be done at the end, it should be the part and parcel when you edit it down and put that in as your visual diary of everything that you've collected.

They all do it at the end: “oh! I need to do that!”, the design document It needs to be checked that the learning log has informed it in the last two things.

RESEARCHER:

OK. Thank you. How did the students use the learning dairies? If you were to just sum it up in your...

EDUCATOR:

Well they used it to reflect, to find where...to see if they'd improved somewhat. I think they used it when they were asking questions, and getting answers and then referring back to the answers. Some of them don't reflect, because they don't understand how to reflect on being lazy, because some of them don't do that much. Some of them have used it, the usual 4 or 5 who can see the benefit. [inaudible segment] they were a bit resistant – it was a bit like school. But the ones that took it on worked well. The ones that are fighting it, without using the characters that you've given, [inaudible segment] I could give them a name, it could be like [inaudible segment]. You know, I sat with him yesterday, and ...

RESEARCHER:

What's your understanding of reflection, if you were to just kind of sum it up?

EDUCATOR:

Is that it? Development...referring to past things that they've done [inaudible segment] chronological fashion [inaudible segment] go back again, it's like an error capture device in a way.

RESEARCHER:

OK. What is your understanding of observation? Yeah...observation?

EDUCATOR:

Their looking and seeing I suppose [inaudible segment] catchphrase.

RESEARCHER:

Can you think of any way that the learning dairies can be refined?

EDUCATOR:

The dairies, it's not the dairies themselves, I think it's the way that they're exposed to them. I think it came as a shock, they were like “oooo”. And then [inaudible segment] tutorials [inaudible segment] different from the first one. [inaudible segment] I think in a way it should be a gradual process because they had a big break, unless we bring them in straight at the beginning. So they come from school [inaudible segment] relaxed time and then it was like “ooo! What's this?!”, I think that's how they reacted.

RESEARCHER:

OK.

EDUCATOR:

But that's a logistical problem, not a [inaudible segment]

RESEARCHER:

What is your experience of the Sherlock Holmes characters?

EDUCATOR:

Little experience, in that they didn't really like them, being put into characters. Because I think it has baggage.

RESEARCHER:

OK.

EDUCATOR:

But I mean it works well when they can see a character defined like that, then they know that...I don't know. I didn't like them – as characters. I think you could have chosen different characters. But they worked because they forced people to think [inaudible segment] I don't know what characters you would choose, but I'd probably have problems with all of them.

RESEARCHER:

In what ways do you have problems with that?

EDUCATOR:

I just don't like the characters, I think they have so much baggage for me.

RESEARCHER:

What kind? Can you give me an example?

EDUCATOR:

Well they intimate a lot of things, because like Sherlock Holmes to me means something. A drug addict [inaudible segment] hounds [inaudible segment] bumbling oaf [inaudible segment]. I mean it just brings so much baggage film-wise and book-wise. Probably because I've read all the books and watched all the films.

RESEARCHER:

OK.

EDUCATOR:

[inaudible segment] I think that was the only problem really, it just had too much baggage for me.

RESEARCHER:

OK.

EDUCATOR:

Cultured. Whether it is for the kids, I don't know. But that's the only problem I had [inaudible segment] Mickey Mouse [inaudible segment].

RESEARCHER:

There has been three ways that the characters have come out as helping, helping the students. The first one is for helping, for helping the tutors to understand their students' learning and help them to improve. Just, has that been relevant for you? Have you found that you've under...

EDUCATOR:

[inaudible segment] You've seen the way I teach by listening to them and watching them, and I just...I suppose in a way it has, but I haven't used it explicitly. Just the fact that I haven't done the marking yet, so I can't see what they've written.

RESEARCHER:

What about as a method of peer and tutor assessment?

EDUCATOR:

I quite liked that in a formative way, but again the groups were too big. It may work better next year with the smaller tutorial groups, but in the big ones they [inaudible segment] and they won't talk, and then if you force them they'll come out with some platitude. In small groups it may work, but I don't think it's a process for large groups.

RESEARCHER:

Was there any general observations that you made apart from the small groups part in the critique? In the concept one and in the final presentation?

EDUCATOR:

[inaudible segment] There was good discussion, but they haven't got a critical language, that part needs to be looked into. [inaudible segment] This reflective process can help them reflect on themselves, but they still lack a [inaudible segment] language or critical abilities. [inaudible segment] the crit shouldn't last 5 seconds, I mean it should be a big long session where things are discussed in depth, [inaudible segment].

RESEARCHER:

OK.

EDUCATOR:

I say that because none of this is going down as me saying it! [inaudible segment] shocking, [inaudible segment] the world began 10 or 15 years ago.

RESEARCHER:

And the last one is to help students understand where they need to improve their seeing and looking. What do you...?

EDUCATOR:

I think they need proper theory taught to them. [inaudible segment] structuralism [inaudible segment].

RESEARCHER:

And the final one, that you've already answered part of is can you think of any other way that you've not mentioned that the characters can be refined?

EDUCATOR:

That would be the only thing. [inaudible segment] it's quite explicit what you've [inaudible segment] in each one. I don't know if you could have less delineation, more cross over? I don't know.

RESEARCHER:

What do you mean by less del...

EDUCATOR:

[inaudible segment] divide [inaudible segment] blurred [inaudible segment].

RESEARCHER:

How easy was it to use the teaching approaches?

EDUCATOR:

Well, I have to say I was a little resistant at the beginning [inaudible segment] as Dr Johnson said, once is experience, twice is habit. I think it works, I mean you mention it now just as part and parcel of talking to them in tutorials and [inaudible segment] "oh yeah, I've done that". They'll either do it or they won't. It definitely works, it helps them see where they're moving rather than [inaudible segment] mark. [inaudible segment] formatively assess themselves and reflect. I think...I hope they do. But we won't know because it's not a quantitative thing is it?

RESEARCHER:

No.

EDUCATOR:

That's the problem. That's our problem, you can see...it's hard to measure how people improve because of this, how people improve...

RESEARCHER:

How would you have done anything differently, if you were to say like what needs to be supported [inaudible segment] general application?

EDUCATOR:

Well as I say, brought in earlier. But that's not really part of the [inaudible segment] it would just be part of the teaching practice really. If it was to be done better [inaudible segment] staff, there were some very resistant staff. I mean if it's there in a less...not didactic fashion, but if it's there in a less...if it was just there as something you could adopt if you wished to. That's all I would say, because it came in too late, which was no fault of anyone's, but as I say, I think if [inaudible segment] start at the beginning, it would have been easier.

RESEARCHER:

OK. That is the end of the interview. Thank you for your help in this research.

END OF INTERVIEW

3.6.2 Case Study Two

The following transcript is from an interview conducted with the educator after the second case study.

Educator ID: EDUCATOR

Interviewer ID: RESEARCHER

RESEARCHER:

Thank you for taking part in this interview. What was your experience of the project?

EDUCATOR:

well I guess I set out with high expectations and some of them fulfilled it. I mean I see it as a nice project I guess because I see it as important and valuable. I was pleased with the ones that engaged. I'm always disappointed with the ones that just don't turn up and don't [inaudible segment] I think they tend to be very high on multimedia in comparison with something like fashion marketing. I've obviously had experiences of both now and both in the first year. On fashion marketing the first years, sorry the third year's attendance is fantastic but first year attendance is much worse. So it tends to be, I guess I'm getting quite a good feel, but certainly on multimedia, their attendance really, really is bad. So I was disappointed that they weren't seeking advice really. There's not enough material for it to have lecture all the time or [inaudible segment] workshop is very much about exploring it themselves, in a personal independent way, and getting advice and coming back, which is the way that I would work but whether it's just not the way that they work nowadays I don't know. But for the most part it was pleasing – much better than in the past when I have taught [inaudible segment] written. I think project work is...they engage much more with the project work than with the written work. So I guess it had its highs and its lows really I guess.

RESEARCHER:

Do you feel that comes with the project remit?

EDUCATOR:

Do I what sorry?

RESEARCHER:

Feel that comes of the project remit?

EDUCATOR:

For some yes. I think in general that I think for majority they probably did what was anticipated of them. There's always going to be the minority of people who just don't...with the learning log as well, it's something they have to go through...there is a good number of students who really engage with it, and we put the emphasis on the learning log and on the research, I guess I was disappointed that some of them didn't look broader, like Liam for instance who just looked very specifically at something. But when they do it they do it very well, but it was meant to be a much broader thing initially but you just don't know whether the days of reading the brief and answering it are gone because it's you know about reading the brief and making of it what you want. I think the disappointing side was their engagement in certain areas. They tend to go for the finished

outcome. They tend to...you've got the odd students who will do everything well and who do the final presentations well, and then you've got students who just want to do the illustrations and the written work. So they always prioritise the bits that they like. And then they'll see a sketchbook and they won't see a mark associated with it, they just see a sketchbook as something you do retrospectively, which is no good really; it's a process, it's a process that they have to go through. But...yeah, it was alright. I wouldn't go overboard about the project, I have to say.

RESEARCHER:

OK. How did the teaching approaches, the guidance that you were given, fit with your teaching style?

EDUCATOR:

I mean I tend to...unless it's something like contemporary design influences where you're standing up giving a lecture every week, in an ideal world, you give them the brief, you give them a lecture to introduce it, and then you give deadlines within that, like in two weeks time I want you to present this or [inaudible segment]. I do have a really, really big problem with [inaudible segment] project though. I think it's a huge problem, because realistically you don't expect to see them full time, three times in a week. Realistically once a week is enough I think, twice at the most, as long as it's like a Monday and a Thursday so that it's like there's time in between to do it. So a lot of it is "are you getting on alright", "yeah, I'm getting on quite well", "well show me next week" and you rely on that student then. I mean I'm not going to chase them, it's up to them at the end of the day. To...if they seek advice to sit down with them or help them or give them feedback, or suggest things to them. But I think I've got to the stage...it's not so bad when you've got 20 first years, but when you've got 40 something in multimedia and 60 something in fashion marketing, it's just too many to then go around and chase individuals. So the idea is that they must take responsibility for their own learning. And there are students that do that very well, and they'll come in and they'll see you and they'll check, and then they get the marks associated with it. Perhaps the other ones just haven't realised that if I do something I get good feedback, or poor feedback and I'll do something about it.

RESEARCHER:

So how specifically has the teaching approaches fitted in with your teaching style itself?

EDUCATOR:

I think it has fitted in, it has. It's just...I don't think they're particularly good at keeping up with doing things on a regular basis which is why the learning log came in. It was meant to be that they do something in a week, even if it's...it wasn't like they had to do a learning log on a Tuesday and Thursday, it was meant to be a weekly learning log. So they were meant to be doing it and reflecting on it and taking it forward or whatever. Now even for a student that never saw me, they would...by using the learning log and reflecting, and going forward, they could have done a very good project, but I think that there are an element of it who are...you know they will always focus

on the thing they want to do which was the entertainment module which was running at the same time. And the module that I set them was actually quite an easy module, it wasn't a difficult module. All the stuff that was coming out of it, even writing in a journalistic style, it wasn't a really hard written module. So on one hand you're disappointed that they haven't followed this very easy track that they've had to follow, [inaudible segment] pedagogy, they've just sort of done things retrospectively, or even worse not done them at all. We had one or two people who just didn't take part in the learning log. But my appearances and attendances at least once or twice a week were for students to come in and be able to reflect with me about what they've learnt or where they were struggling or whether they were enjoying it, which is an important part of the feedback – "I'm really enjoying this module", "I'm really struggling with it", or can I do this? Can I do that? It's that advice that a lot of them don't do. [inaudible segment]

RESEARCHER:

How would you describe the teaching approaches to another tutor?

EDUCATOR:

Oh god...I don't know actually...talking about the students in particular then, how they'd engage with...

RESEARCHER:

Two questions, yeah, the value it's brought to the students, and the value it's brought to you as a tutor. So either one or you could describe both, to start off with the students?

EDUCATOR:

I mean it's all down to engagement at the end of the day really isn't it? Again it's the students who have actually taken on advice. You know if you've given [inaudible segment] advice, things like the list of websites to go and look at, and to go...in terms of the visual side of it, actually for the module, it's meant to be quite a written part. What I was getting them to do in terms of the sketchbook was to turn that into things like the mind maps, the brainstorm, the sort of looking at things from a broader basis and doing it in a very visual way. So rather than writing a load of things down they were supposed to find images associated with it or sketch or draw. So what I set off for them to do was learning and getting used to sketching, used to drawing, used to being able to observe, and to think things through quickly, which is the whole idea of drawing, you know you're meant to look, observe, draw things quickly. A lot of them didn't do that. A lot of them didn't engage with that, and going back to the old "oh here's a whole article on trend so I'll cut it out, make rounded corners, stick it in and make my own few notes to it". So again, what my ideal is of that would be a sketchbook at the end of the day, I wouldn't say that many of them reached that pinnacle which is where I had my sights set. They tend to look at [inaudible segment] you know what's the least I can get away with? It's a Mrs Hudson really – the least I can get away with to do this. But I'm interested, I know I'm interested, she's told me I should be interested, because this is going to be useful. It was only Lewis really who actually said "I thought was just about

things, but it's not, it's about thinking and behaviour and whatever". So I think it wasn't as high as it could have been?

RESEARCHER:

How would describe the strategies of the learning log, the characters and the self improvement exercise to a new tutor coming in?

EDUCATOR:

How would I describe it? Funnily enough I wrote something down the other day, I can't remember what it was that I was writing down, but I was [inaudible segment] about that...I've just about finished [inaudible segment]...so hungry...I'd say that when it's done properly I'd say that it's an excellent way of encouraging independent learning and reflection. The fact is if they have to do it then they have to sit down and be able to reflect really where they've come from, you know the last project in particular, which is their first exercise; look at the last project, take it forward. So I think all the theory is there; they're looking at the last project, they're saying what they want to do with this project, they're saying that they're aiming towards Sherlock Holmes, but they're still Dr. Watson, [inaudible segment] but they know what they want to do. So all of the theory is there in terms of what they like and what they've got to say. I would say there's about a third, or slightly less who actually action that. The rest of them, it is a process, it is formulaic, it's that sort of equation: $2+2=4$. They don't actually sometimes say "well what did I say in the last project?", "I need to look more". I think it's different for instance, I think you say as a project, I want you to rate these websites, and they go "oh, it's crap, it's rubbish, I don't like Amazon, lah dee dah dee dah". And you say well what was wrong with it and they say "well it was rubbish to use" or "it's horrible looking". And you say to them "well, you know, what you're doing is you're being a Mrs Hudson, you're looking, you're not looking at how easy it is for a child, or how easy it is for someone who's never used a website", you know. A heuristic [inaudible segment] website design. Once you tell them that you say go and do it again, what are you going to do? "I'm going to look deeper". Now I would say that for the majority of students they would get a much better mark because they can action that on a set of principles that they've been told and a project that they've had experience of. But in a way what you're doing is giving them a completely different project, and they've got to learn that thing about trends and then look deeper, and I just don't think 4 weeks is long enough for that. I think it will sometimes will...like I said if we set that again now, and said right, you're looking at 10 weeks, they'd have gone and done a completely different thing because they've had that experience, and it's like information design and publishing design one, information 2 is not information 2, it's just a title, it's completely different set of principles, completely different brief, completely different learning outcomes etc. So it's not like pattern cutting which really is like 1,2,3,4,5. It is about developing something that you do. Perhaps I'm being unfair about this information design system idea, but it's not that...it's not the sort of mechanics of it, it's a completely different thing, they've got to learn how to engage with...

RESEARCHER:

OK. What was your experience of the learning logs and how does it differ from the design documents?

EDUCATOR:

I mean the learning logs, I didn't see a huge amount as they were going along, I mean I know from your experience when you saw them, some of them were good but on the whole they weren't brilliant, I don't think were they? There was one or two people who had done very well. The learning logs to me are very...I mean they're very different from design documents, I guess, but that personal affection isn't in the design document. I think if we could mould the two together... [inaudible segment] design document as in the sort of things that they do or are you talking about the actual sketchbooks, or...? [inaudible segment]

RESEARCHER:

The distinction between the design document or the sketchbook as in the formal process that I went through as a student.

EDUCATOR:

Right. I think with the design document, and there is this sort of argument in the '(fire)? at the moment, that the design document is when you're very formulaic, and it's easy to have a template and drop stuff in, and it's not hard to do. And the whole idea of the multimedia design students is that in their final year they meld a design document and a dissertation and this is what the big mmmm is at the moment in how to do that so that they do something academic but they [inaudible segment] primary research, that it includes primary research because then they have to engage with that and they have to go out and do it. I mean you did for your dissertation anyway, but it's almost a little bit like that where they actually go out and get real life information from people, from teachers, from industry, from exhibitions, and they reflect on that. Because it hasn't been written down for them they've got to reflect on that exhibition, and that interview with the PhD student who was doing something fantastic in Flash or whatever. So they're very different because the design document, the first one is very much about the process, it's sort of the 276 which is more about that – reflection on what went right, what went wrong, how you could have improved etc. Then in the first year it's actually trying to get them to do that because it's actually the only time that they reflect. At the moment they don't reflect, it's only since you introduced that, and I think that has to be a really important part, you know going forward it has to be in there because the way that we're having to look at teaching, all that's having to change, those weekly coming in intense one-to-ones is going to have to change for all programmes it's going to have to be "Right, here's the brief, see you in two weeks. You're in a group of six and you can give each other feedback and support each other on Blackboard". So I think there has to be, within their little community of six, there has to be more, in an ideal world again, but like the dissertation was set up, I think you probably missed it, but there was group mark where they read each other's dissertations and gave

each other feedback, even if it was spelling mistakes or suggesting something, which was very, very useful, and someone like [Name as been removed] got 90% because the feedback she got was fantastic, but it was great that it wasn't just from me, they were getting feedback from [inaudible segment] people. I think that's an area that has to be explored and I think that the learning log, the self reflection is one thing, but I think it would also be good to get the students not necessarily at the end of it, but in a smaller supporting seminar group, to be able to rate each other or to be able to be honest with each other or even just [inaudible segment] walk out and say how are you going to [inaudible segment]. Have a discussion about each other's learning styles, you know?

RESEARCHER:

OK. What is the difference between a reflection and an observation?

EDUCATOR:

Is this from a tutor point of view or is this just in general?

RESEARCHER:

In general.

EDUCATOR:

Reflection is about being honest and being critical, and being self effacing and giving yourself a boost when you need it and observation is literally the observing of something the observing of fact. Observing isn't really looking for me, observing is looking, it's not the sort of seeing, whereas I think reflection is more about seeing. It's more about, as I say, giving yourself a boost when you need to or being very critical about it. Is that a sort of answer? [inaudible segment]

RESEARCHER:

Can you think of any way, bar what you've said, that the learning logs or diaries can be refined in any way

EDUCATOR:

I don't necessarily think that it's sort of refined, I think that it's...everything's in place, all the mechanisms are in place, it's not a difficult thing to do. In an ideal world you get 150 students applying for 30 places and you take the 30 best, [inaudible segment] kids that are really keen and that really want to do it and really want to engage. The fact is that you know, we struggle to get the numbers in the current first year and [inaudible segment] in there, and what you're asking them to do...you're asking them to reflect on yourself to say...there's nothing hard about that. Even me as an 18/19 year old could reflect on myself about what I needed to do and what I didn't, so I don't think there is an issue there – it's very easy to understand. It's just a question of how it's...you could argue, you could say well surely the fact that it's worth 30% at the end of the day is carrot enough to get them to do it. Why [inaudible segment] still beneficial? But they've been to the sessions so they know it's beneficial, so I don't understand what they're reluctance is. Unless they're just the sort of type who doesn't want to know or can't be bothered or thinks they're good enough anyway...you know. It's just styles then isn't it?

RESEARCHER:

OK. What was your experience of the Sherlock Holmes characters?

EDUCATOR:

What, in terms of the students?

RESEARCHER:

Yeah.

EDUCATOR:

Who were the Sherlock Holmes Personas?

RESEARCHER:

The only chance I think you probably had to use the Sherlock Holmes Personas was probably in the critique, and the self-evaluation one before that, so: for you as a tutor to understand the students and to understand how to help them, I've got the second is as a method of peer and tutor assessment, we didn't necessarily do that part of it, and as a way for students to understand where they need to improve their seeing and looking. So they're the three areas. So as a device for you to understand the students, how did you find that?

EDUCATOR:

I thought it was...you know...it was...it categorises, I mean the hound never came into it, but I think the hound is just people that don't turn up and don't engage. [inaudible segment] feel I suppose. I don't know I think [inaudible segment] just did it very well – there are the three levels of engagement. I mean there's quite a lot to them, you know the paperwork you gave me initially, it was quite...tutor had gone through with a highlighter and she'd highlighted the main areas of it that were beneficial, to be able to flick through it and see, you recognise all of that. I think as a tutor, we have an awful, awful lot to deal with nowadays. I, I know that I've mentioned it before, but 10 years ago I was only teaching on multimedia and we had 20 students in the first year, 20 students in the second year, 20 students in the third year. That was it. Nowadays you've got 40 or 60 or whatever else, much more paperwork, much more admin. The whole time to engage with those students has been lessened. And once upon a time, if I'd sat there with a class of 4, I'd have probably got on the phone or sent them an email saying you've got to come in, but I haven't got time to chase them up, so it becomes one of those self-fulfilling prophecies where at the end of the day you think, well they haven't turned up they're going to get a bad mark. I can't engage any more with it than that. Somehow they've got to engage with it themselves, and there's a question as to whether it's the students who are just not engaged, you can question whether it's the teaching methods – if you're not bothered about them coming in, if you don't chase them up and send them emails, then they'll think "well they're not bothered so I'm not bothered". You can get someone sitting down and ask them well why didn't you come in? Is it [inaudible segment] is it the teaching methods? Instead they get these questionnaires handed out, if you remember to do it, which are very general. But it's very much about time and I think you engage with the people who are there

and you're engaging with the same people every week. They are the people who are trying to look or trying to see and trying to understand. And I don't think in that year group there are very many Sherlock Holmes. There are people who are keen, but they can be Mrs Hudson and keen or just there because their dad's brought them in at 9 O'clock, or whatever else, so I think there are actually very few of them that are actually the Sherlock Holmes Personas. But there are enough to feel happy about it, you know? I mean yes, I understood everything...yeah.

RESEARCHER:

OK. How do you feel it is a method for students to improve themselves? Do you think it's...?

EDUCATOR:

I don't know, I think it's a useful tool. I don't think it's the only tool that they should engage with, they should sort of use it as a starting point and they should be aspirational enough to say "I want to move away from Mrs Hudson, I want to be Dr Watson" and for some people Dr Watson is all they'll ever achieve. I think it is important for them to realise that that is a tool for self reflection, but it doesn't...[inaudible segment] by going to exhibitions, or talking to people or reading the right magazines, they will themselves grow in confidence and in the ability to see and by osmosis become Sherlock Holmes, by the final year. But they've got to want to do that, and as I say there are enough students in there that are ambitious...it is down to ambition at the end of the day. [inaudible segment] in the cohort who is ambitious enough to want to engage with it, but it's not the only tool, obviously.

RESEARCHER:

OK. What was your experience of the Self-Evaluation Activity?

EDUCATOR:

That was just the little bit at the end wasn't it?

RESEARCHER:

A bit at the beginning

EDUCATOR:

Yes

RESEARCHER:

Where we went round and talked to them about their learning

EDUCATOR:

Yes. Again I thought that was good. The fact is that they had to do it there and then. It's not something they could go off and do. It's just a process again, it's a hoop they've got to jump through [inaudible segment] say "yeah, I know what I've got to do" it's just a question of doing it really isn't it? And that's where you get the problems about how do you motivate them? Do you motivate them with marks? Do you motivate them with awards at the end of the year? Or do you motivate them with money or with [inaudible segment] objects. How do you actually motivate

them to do that? Students tend to be very marks orientated, not in the first year, but they'll become more so in the second and third year. So yeah.

RESEARCHER:

How easy was it to use the teaching approaches?

EDUCATOR:

I can't remember what I said before, I think I said it was fairly easy. You're talking in terms of the students, their weekly...

RESEARCHER:

Yeah, just generally how you felt or if you would do anything differently?

EDUCATOR:

Well other than setting up more formal points of assessment, and forcing them in a way to learn, and say by next week I want this, and by next week I want that and you know, setting them individual targets. I think again that just comes down to time the constant thing is why are we making life so much harder for ourselves by doing all of this interim assessment and in a 4 week project it's so difficult, it really is difficult. I think if you get one interim crit in, then I think you're doing well. It's different with the 12 week modules and I'm teaching 12 weeks at the moment and it's so much easier. You've got 2 weeks before [inaudible segment] about doing anything, then you've got 4 weeks time and then they do something else. And you can assess it at that stage and assess it later on. It's just down to the 4 weeks, I think it's completely unrealistic for a lot of things. It doesn't allow time for that, even though they have extra time in their timetable, it doesn't really allow for the thinking time and that goes hand in hand with that really doesn't it...so I mean it's...in an ideal world they're all learning through that and they're all coming on in leaps and bounds but it doesn't necessarily happen.

RESEARCHER:

OK. Thank you for your help that is the end of the formal interview.

END OF INTERVIEW